INTRODUCTION TO THE BSD SYNDROME.

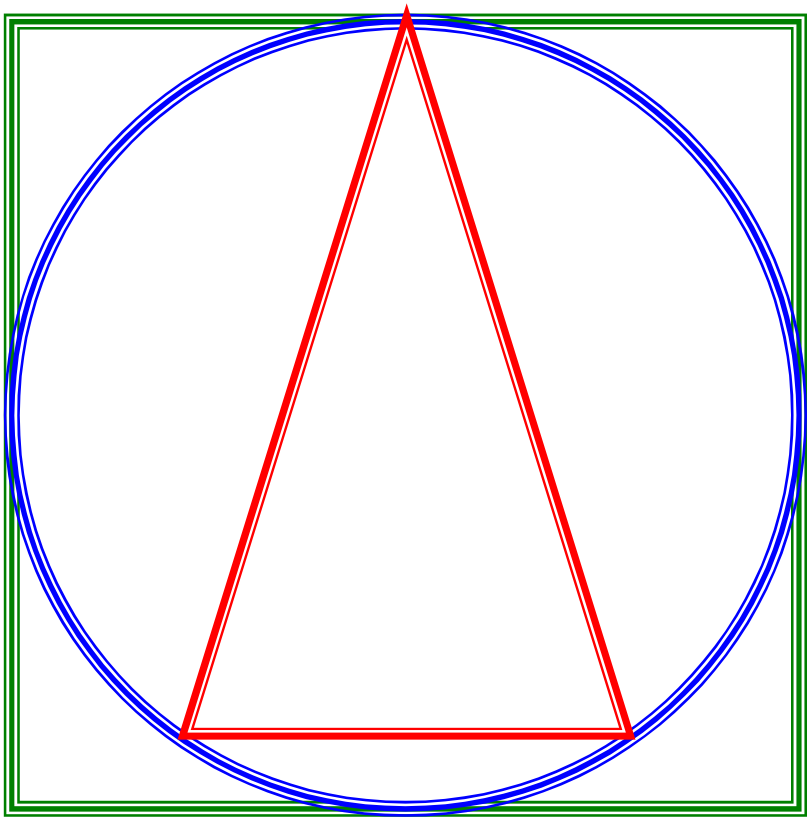
A JOINT PROJECT BY MAVAW AND A TEAM OF SELECTED PROFESSIONALS.

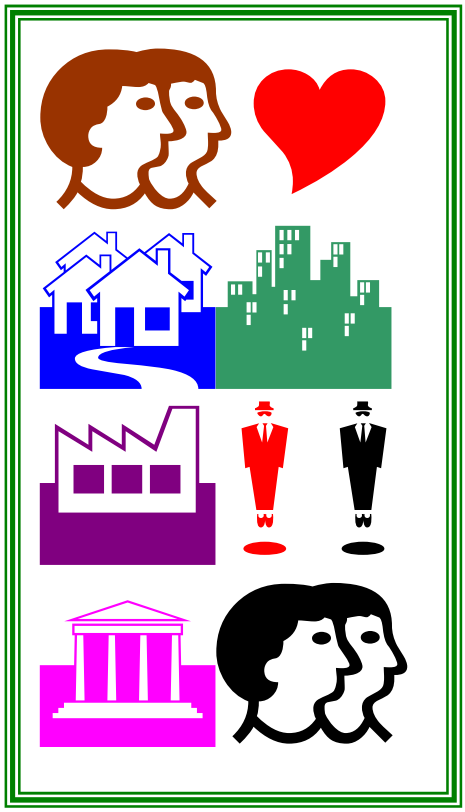
BY MEN AGAINST VIOLENCE AGAINST WOMEN.

Twenty-First Century

A Proposed Joint Project by *M.A.V.A.W. and A Team of Selected Professionals.*

A Culture Of Peace





REPUBLIC OF TRINIDAD AND TOBAGO

Men Against Violence Against Women

Email: mavawsec@yahoo.com **Web Site:** http://www.mavaw.com.

What Is The BSD Syndrome?

The *BSD Syndrome* is a local Trinidad and Tobago analytical concept for Domestic and other Violence, being developed by the NGO, "*Men Against Violence Against Women (MAVAW).*" (1994).

This concept utilizes the information, research and expertise already available for people working in the area of Violence Reduction, placing all that is presently being made use off, under the phenomenon of a *Syndrome*, identifying *BSD's* in a number of ways, briefly explained below.

Tons of work has already been done on: -

- ***Belief System Deficits, (BSD)***
- ***Behaviour Skill Deficits, (BSD)***
- ***Biological System Deficits (BSD) and***
- ***Baggage System Dependencies (BSD)*** **by practicing**

Psychologists, Psychiatrists, Sociologists, Social Workers, Medical Internists, Building Biologists, Nutritionists, Interior Designers and Housing Specialists/Community Planners.

Unfortunately, rarely do more than one or two of these professionals; focus on the problem of Domestic Violence and/or Societal Violence, at any one point in time or in any single piece of literature, primarily because of academic learning structures and egotistical practices.

What the *BSD Syndrome* will do, is to pool all the relevant data together under a *Syndrome* and spread the gospel of a Holistic approach to solving Violence Problems. In the *BSD Syndrome*, you will realize that violence in relationships is a paradoxical issue. Characteristics identified as BSD's in "abusive outwards behaviour", is complemented and also considered "abusive acceptance behaviour", recording the paradoxical fact that both parties in a relationship have BSD's.

It is therefore, a philosophical and scientific way to moves from the individual discipline solutions to a multi-discipline solution and depends on the acceptance of the concept that no one discipline has the answer for a situation where recurring violent behaviour have a variety of influencing elements.

Consequently, a model of the four (4) main characteristics within the *syndrome* can be used for research, analysis and diagnostic purposes. In addition, programmes for development in the four areas identified above, can be designed to replace the existing unsuitable ones, which in the main, contribute to polarizing the sexes, using inflammatory language, limiting the healing process.

A lot of research has already been collected for editing, prior to the preparation of a multi-authored text titled *"Roots of Societal Violence—Understanding the BSD Syndrome"*. A few professionals have already been approached to be part of this ambitious project and in due course, some of the challenging logistics will be hammered into place. The days of using "Batterer", "Victim", "Perpetrators" in violence analysis, are numbered in the minority.

A letter to the Webmaster of the most powerful "male issues" website, Bert Hoff is appended to this explanation for further clarification and description of our work as *MAVAW.*

Yours In Nation Building

Company No M 1799(95) Charitable Status No F (BUD):7/4/205

P.O.R.O.

FIRST GENERAL MANAGEMENT COORDINATORS—DONALD BERMENT—DAVID LAW—JOHNNY BHARATH.

To: berthoff@comcast.net. **REPLY TO BERT HOFF**
Date: Wed/15/Oct/03
From: mavawsec@yahoo.com

Hello Bert,

Please accept my sincere thank you, for your quick response and frank comments to/on my Email "Men Against Violence Against Women**".** Let me also acknowledge here my deep appreciation for your work in maintaining ***"Men Web"*** and David Troops' efforts in ***The Men's' Issues opus***. These resources will forever be a tremendous help to all men working on issues which affect men, be it abuse to them, from them, to and from their loved ones and to the environment. Another site to note is **www.menagainstviolence.com**. The other Email to you, mentioned November 19th, the annual celebration, locally and in the Caribbean of ***"International Men's Day".*** My wish is that you hold no objection to this celebration and spread the word to the best of your ability.

The philosophy underpinning reduction and elimination of unacceptable violence, in my view, must accept different methodologies, presentation styles and degrees of healing by the persons involved; all based on their personal levels of emotional, physical and spiritual maturity.

Many men, on first hearing about MAVAW and reading our documents, get the impression that we do not realize the full extent of abuse to men or support them to the same degree, as we do women. A closer perusal of our Formal Documents and our History will show quite the opposite.

For the past five years ***MAVAW (Men Against Violence Against Women***) has been operating a 24-hour HOTLINE 1-868-637-0924 with mailbox and cell phone 1-868-753-0804, so that we can testify to the pain and suffering of both men and women experiencing violence in their relationships. Our members sat on the Cabinet appointed Committee, which reviewed our Domestic Violence Legislation. MAVAW men now sit on the Cabinet appointed Committee, which is analyzing the Status of the Family in Trinidad and Tobago. Our Crime Statistics predominantly record offences by violent young males, a serious concern to us as men, fathers, uncles, brothers, nephews, grandfathers and adults. At last count, 5,494 men were incarcerated in our Prison system and 216 women. A fact we aggressively requested to be noted by the formulators of the first National Gender Policy. As our Documents state ***"We Want Change Not Exchange"***

Every Judge, Master of the High Court, Justice of the Peace, Magistrate, Library, Parliamentarian, Calypsonian, Media House and many NGO's to name a few have a copy of our ***2002 Domestic Violence Awareness Handbook.*** On every occasion possible and there is a very interactive media component here; we challenge men and women on their gender insensitive statements. MAVAW coordinated a 13-week radio programme titled "Talking Gender" emphasizing how both men and women are affected equally by violence in relationships.
At present there are five very important projects, which are getting the support of Men Against Violence Against Women: -

1. Publication of a textbook by member Dr. Russell Foote, "Roots Of Youth Aggression: Home, School and Multilevel Interventions",
2. International Men's Day by friend and supporter of MAVAW PhD candidate Jerome Teelucksingh.
3. "Men's TV" a one hour television programme for men, hosted by member Dr. Robert Moultrie, with half hour interviews and half hour public interaction.
4. The ***BSD Syndrome Concept***, our most important and "people issue" to date (explained below in part, which in my view is the future of Domestic Violence analysis and discussion).
5. A Bumper Sticker Programme, utilizing our most poignant "One Liners.

This ***Syndrome*** will eliminate the terms now used in the ***Violence In Relationships Arena***, terms like ***victim, batterer, perpetrator, domestic violence*** etc. Within the ***BSD Syndrome***, you will understand that Violence In Relationships is a paradoxical issue…Characteristics, which have already been well documented elsewhere, now come together under the umbrella of a Syndrome, and paradoxically, what is considered abusive as "outwards behaviour" is complemented and also considered abusive as "acceptance behaviour", recording the fact that both parties in the relationship have BSD's. These Characteristics can be explained under 4 Heads, which time and space allows for brief mention here: -

1. Belief System Deficit (BSD)
2. Behaviour Skill Deficit (BSD)
3. Baggage System Dependency (BSD)
4. Biological System Deficit (BSD) and these are the negative components in the Syndrome. The positive action within the Syndrome also termed BSD's, but refer to methodologies utilized to accomplish Development: -
5. Belief System Development.
6. Behaviour Skill Development
7. Baggage System Development and
8. Biological System Development.

This concept scientifically places the Violence In Relationships Issue, into a medium that takes away the stigma and gender polarizing associated with its treatment in the past. We anticipate resistance to this concept by some women, primarily because every statistic, which lists one person being hurt, will also have to list the other person causing the pain, as being hurt too. A lot of women will find that hard to accept, but we hope that in few years time this will change.

In the past MAVAW actively co-hosted Male Awareness Week in December, Fathers' Week in June and fully support the entire Women's Days here. In Canada during the year 2000, we were actively involved with planning the first Dad Walk by the White Ribbon Campaign. This year they celebrated their 4th Dad Walk on the 15th June at the Toronto Zoo. **http://www.whiteribbon.com**. We were also instrumental in changing one Canadian Government programme from "Male Batterers Programme" to "Spousal Abuse Programme". In Suriname during November 2002, one of the feminist's organisations there, which has progressed to the "people issue" stage, ***Foundation Stop Violence Against Women, Director Tienke Sumter***, Email **stopgeweld@sr.net**, invited us to participate in a 3-day conference and provide a 4-day training programme for their NGO Sector in the following areas: -

1. Domestic Violence Awareness.
2. Parenting
3. Healthy Relationships.
4. Domestic Violence and Interior Design.

The conference Theme was ***"Development= Change: From Women Counseling To System Oriented Counseling***" and my presentation was titled "The Role Of Men Against Violence Against Women". Let me acknowledge that it was at a training session with the top managers of this forward looking feminist group that the BSD Syndrome was fine-tuned with their contribution, from just noting the "baggage" as a characteristic to the" Baggage System Dependency".

What we firmly believe however is that we as men must take responsibility for male violence and do all in our power to reduce and eventually eliminate it from our society *(Violence by men against men, women, children and the environment*). If women choose to do or not do the same, they will bear the consequences of their action. We are men not God, so judgment is not ours to pass

Please keep in touch Bert and forgive this long Email.

Donald Berment, Secretary MAVAW

REPUBLIC OF TRINIDAD AND TOBAGO

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45 River Estate Circular, River Estate, Diego Martin, Trinidad.
Hot Lines: 637-0924, 668-5133. 753-0804 Fax: 637-0924.
Email: mavawsec@yahoo.com. **Website**: http://www.mavaw.com

DIRECTORS: **Christopher Holder, *CHAIRMAN*. Donald Berment, *SECRETARY*. Desmond Persad, *TREASURER*.**

Date: **Thursday 11th November 2004** ***Our Ref.:*** **mavaw/PDW-ja-1** ***Your Ref:***

Mr. Peter Douglas Weller, PhD,
Clinical Psychologist,
University Counseling Service,
University of the West Indies, Mona,
11 Gibraltar Camp Road,
Kingston 7,
JAMAICA.

SUBJECT: CARIBBEAN MEN'S GROUPS AND BATTERER'S INTERVENTIONS.

Hello Peter,

Thank you for your kind attention and invitation to contribute to this new ***Men's Group*** in Jamaica and your Report preparation for UNIFEM's review meeting in December 2004. Men of ***MAVAW*** are always extremely excited to participate in the growth and development of ***"The Men's Movement,"*** which commenced over 50 years ago Internationally, fuelled by the example of the most holistic Gender Sensitive man known to date, ***Jesus Christ.***

The ***Men's Groups*** known by us in the Caribbean are: -
Trinidad and Tobago—ARTOM (The Association For The Reorientation And Transformation Of Masculinity)—Men (Men's Enlightened Network) not active and of course us.
Jamaica—Father's Incorporated.
Barbados—National Men's Fellowships Association.
St. Lucia—The Mother's and Father's Union.
Belize—Brothers of BOWAND.
Suriname—ManmitMan.
Guyana—Men Against Violence Against Women.

Trinidad ***MAVAW*** sat on the Cabinet Appointed Committee to review our Domestic Violence Legislation, Act No 10 of 1991 to our new Act No 27 0f 1999. We also sat on the just completed Cabinet Appointed Committee to examine the Institution of the Family in Trinidad and Tobago.
What has resonated to a high degree in these deliberations, both over 12 months duration, is the need to reconsider the Terminology used in the ***"Violence Reduction Movement"*** and attempt to truncate the Gender and other polarization consequences, which accrue from words like "***Batterer," Victim," "Perpetrator,"*** etc.

It is now accepted Internationally, that dysfunctional behaviour in Democratic Societies, has been researched, presented and documented individually by disciplines within the Medical, Social, Food and Building Sciences. Psychologists (like yourself) Psychiatrists, Internists, Nutritionists, Building Biologists, Interior Designers & Decorators and Housing Specialists (like me), have already recorded/accumulated a tremendous amount of research/experience in their respective disciplines.
Unfortunately, this valuable effort is only utilised individually in order to strategize for ***Violence Reduction*** in societies, which in my view has allowed the creation of a **Peaceful Culture** to elude us to date.

Over the past 2 years, Trinidad and Tobago's, ***Men Against Violence Against Women*** has been presenting this accumulated effort as a means to face "Head On" the Roots of Societal Violence. We call it ***The BSD Syndrome***, which gives due respect to the work already done in the individual disciplines listed above, providing a path for a Unified Approach to ***Violence Reduction***, eliminating the Terminology that has been the source of polarization, replacing it with ***Belief System Deficit and Development, Behaviour Skill Deficit and Development, Baggage System Dependency and Development and Biological System Deficit and Development, or for short "A BSD"***

Although, ***The BSD Syndrome*** is a simple solution of Structure, it will require the input of all the relevant professionals, in order to present the final work in Book form for dissemination to the public. The presentation for the Academic Community is about ¾% complete, funding a major concern. Sadly, men working in this arena do not obtain adequate funds to do what is necessary. We were offered coffee, juice and finger-food on those Cabinet Appointed Committees mentioned above, not even free Internet Access to our Community Based North West Location to do Caribbean and International Collaborations, like this. Not to be daunted by this reality however, Peter, it will be fantastic if I can get you to be excited about this eclectic Syndrome as I am and interest you in providing a Chapter in the proposed Book, suggested Title ***"Roots Of Societal Violence—A Male Perspective: Understanding The BSD Syndrome".***

With respect to the Intervention Programmes you are interested in, there is not much to offer locally or in the Caribbean, which originates from the Judiciary. Brief mention is made of Counseling Programmes in our Domestic Violence Legislation and we have a new Family Court System that depends heavily on Counselling and Mediation.
We also have active NGO's, 1,630 registered at last count, in 15 Municipal Regions and a Ministry of Community Development and Gender Affairs, which over the past five years, have been seriously attempting to educate both men and women on the concepts of Gender and Gender in Development. The financial commitment to this work is however heavily skewed to the female component of the Gender Arena. In our last Budget, 2004-2005, the sum of $9.7M TT was allocated for several women development projects and $160,000 TT for one male development project, in spite of the glaring statistics of young male crime, deaths, suicides and poor school attendance.

However, I spent 5 months in Canada (November 1999 to April 2000) completing a self-funded Development Research Project, using the REM (Ripple Effect Model), titled ***"Violence Reduction Strategies in a Large Multicultural, Racially/Tribally Diverse Country—Using the RET Model"*.** Funds were not and still are not available to present this work for academic scrutiny. But in Canada, you will find NGO, State and Judicial Intervention Programmes, many of which target the male population.

The List of Websites below provides valuable material, for both pro-feminist and pro-masculine research:
www.xyonline.net www.michaelkaufman.com www.endabuse.org/bpi www.mavaw.com
www.web.net/womensHRights www.menweb.org www.sheridanhill.com/Batteredmen.html
www.csulb.edu/~mfiebert/assault.htm www.resourcesforfathers.or www.menshealthnetwork.org
www.menstudies.com/links.htm www.achillesheel.freeuk.com/index.html www.profeminist.org
www.cyfc.umn.edu/Fathernet www.unicef.org/reseval/malsr.htm.

Best of luck with your future work and I welcome further discussion on the project and the development of a coordinated and collaborative Caribbean approach in both areas. Please remember the movement for Terminological Changes. Our website (under construction listed above) will give you more information.

Signed ……*DONALD BERMENT* Secretary *MAVAW.*

Yours In Nation Building
Company No M 1799(95) Charitable Status No F (BUD):7/4/205
G.M. Co-ordinators: David Law, Johnny Bharath.
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***DIRECTORS:* Christopher Holder, *CHAIRMAN*. Donald Berment, *SECRETARY*. Desmond Persad, *TREASURER*.**

Date: Sat/8th/Oct/05 ***Our Ref.:*** mavaw/BM-uwicc ***Your Ref:***

Professor Ramesh Deosaran,
Head,
Centre for Criminology and Criminal Justice,
University of the West Indies,
St. Augustine Campus.

SUBJECT: UPCOMING BREAKFAST MEETING AND SEMINAR ON VICTIMS' RIGHTS

Dear Professor,

Thank you for the invitation to the Breakfast Meeting on Sat/15/Oct/05 at the Crowne Plaza Hotel and the Notice of the Seminar on "Victims' Rights and Welfare" on Sat/12/Nov/05 at the LRC, UWI.

Over the years my research as a Housing Specialist has highlighted two important facts: -

1. That criminal behaviour has an inherent paradoxical nature and therefore must be analyzed with a suitable model and
2. There must be a collaborative and cohesive thrust in the intelligence gathering aspect of crime prevention that has to rely on "close to the ground" support, with well managed communication strategies, as opposed to high level and International assistance.

As part of my contribution to ***MAVAW***, attempts are being made to develop "The BSD Syndrome" both as a scientific treatment of Domestic Violence and as a Model for analyzing its occurrence in families.

The volume and scope of this attempt requires resources unavailable to me and ***MAVAW*** at the present time but the concept has been introduced to the local and International NGO community a few years ago. On our developing Website the Folder "The BSD Syndrome" can provide some insight into my attempt.

An unbiased review of the nearest thing we have to "close to the ground" intelligence gathering i.e. "The Crime Stoppers Programme", will reveal that there are reports the Police have not attended to as yet although the activity reported is ongoing. This is not the forum to lay the foundation for Item 2 above.

In the Folder "Books", "Gender" same site a copy of the Draft Gender Policy is available for first reading.

Our Chairman Christopher Holder recently completed his M.Sc at your Centre in the "Sociology of Crime and will be interested in offering his views. I am interested in doing Law next year, wish me luck.

Our sincere thanks again for your kind invitation, which I will try to attend.

Signed ……*DONALD BERMENT* Secretary *MAVAW.*

Yours In Nation Building

Company No M 1799(95) Charitable Status No F (BUD):7/4/205
G.M. Co-ordinators: David Law, Johnny Bharath.
P.O.R.O.

The Roots of Societal Violence

UNDERSTANDING THE BSD SYNDROME

Complied By Donald D. Berment, Secretary,
Men Against Violence Against Women (MAVAW)

WITH INDIVIDUAL CHAPTERS BY:

Psychologist,…….
Psychiatrist,……..
Internist,……
Nutritionist,……..
Building Biologist,……
Interior Designer,……
Housing Specialist,……

SYNDROME:
Condition. Disease. Pattern. Set Of Symptoms. Disorder.

CONDITION: (state [n]) (Stipulation [n]) Acclimatize [v])
State. Form. Situation. Circumstance. Order.

DISEASE:
Illness. Sickness. Ailment. Disorder. Virus. Infection. Syndrome. Malady.
Bug. Complaint. *(Good Health [Antonym]).*

PATTERN:
Prototype. Outline. Model. Example. Blueprint. Guide. Mold. Sample.
Precedent. Archetype.

SYMPTOM:
Indication. Sign. Warning Sign. Indicator.

DISORDER:
Chaos. Disarray. Confusion. Mess. Muddle. Turmoil. Anarchy. Mayhem.
Bedlam. Unrest. *(Order [Antonym])*

BELIEF: (Faith [n]) Confidence [n]).
Faith. Conviction. Confidence. Principle. Idea.

BEHAVIOUR: (Performance [n]).
Performance. Actions. Deeds. Activities. Manners. Conduct.

BAGGAGE: *(Luggage [n]).*
Luggage. Bags. Suitcases. Cases. Belongings. Personal Belongings. Hand Baggage.

BIOLOGICAL:	*Organic [adj.]*	*Natal [adj.]*
Organic.	Natural.	Birth.
Natal.	Whole.	Genetic.
Life.	Unrefined.	True.
	Untreated.	Biological.
	Crude.	Natural.
	Macrobiotic.	

BELIEFS—BEHAVIOUR—BAGGAGE
The Psychologist--The Social Worker--The Counsellor.

BIOLOGICAL FACTORS.

HUMAN BIOLOGICAL
The Psychiatrist--The Internist--The Nutritionist.

BUILDING BIOLOGICAL
The Building Biologist--The Interior Designer and Decorator--The Housing Specialist.

Toxic Shock Syndrome

Toxic Shock Syndrome (TSS), rare disease associated with strains of the bacterium *Staphylococcus aureus,* a common inhabitant of the skin, oral cavity, and vagina. Under certain conditions the bacterium produces a toxin that apparently attacks the immune system through the bloodstream, in turn permitting more toxin to be produced. Liver function is also altered, resulting in liver and kidney damage. Symptoms of TSS include rash, high fever, lowered blood pressure, diarrhea, and vomiting. TSS has caused death in about 3 percent of reported cases. The disease can be treated with antibiotics.

The first identifiable case of TSS dates back many years, but the disease only drew great attention in the United States in the late 1970s, when an outbreak led to fears of an epidemic. A few thousand victims were eventually involved, about 80 percent of whom were menstruating women. Almost all of them were using superabsorbent tampons, which apparently provided a more oxygen-rich atmosphere in which vaginal bacteria could readily produce their toxin. When women began to use such tampons only intermittently or not at all, the outbreak subsided.

Tourette's Syndrome

Tourette's syndrome, neurological disorder characterized by involuntary body movements and vocal, sometimes obscene, outbursts. A rare disorder, it is named after a French physician, Georges Gilles de la Tourette, who first described it in 1885. The syndrome commonly appears in childhood—more often in males than females—and may worsen thereafter; the cause is unknown. No cure yet exists, but symptoms are often treatable with tranquilizers.

Sudden Infant Death Syndrome

Sudden Infant Death Syndrome (SIDS), also called crib or cot death, the unexplained sudden death, usually during sleep, of an apparently healthy infant. In the United States, SIDS is the third leading cause of death in infants between 1 month and 12 months of age. It primarily strikes children one to six months old—57 percent of SIDS victims are two to four months old and 95 percent are less than six months old. Since 1989, when more than 5,600 infants died of SIDS, the number of cases has decreased steadily in the United States. In 1998 about 2,800 infants died

of SIDS . About 60 percent of infants who die of SIDS are males. Native American and African American infants are at highest risk.

Studies show an association between SIDS and one or more risk factors. SIDS is more common in infants with low birth weights—those weighing 2.5 kg (5.5 lb) or less at birth. SIDS is more common in infants whose mothers are under 20 years old, unmarried, have had inadequate prenatal care, did not breast-feed the infant, or have more than one infant. There is a higher incidence of SIDS among infants whose mothers smoked during pregnancy or after birth. Risk also increases in households where the father or another family member smoked—research indicates that infants exposed to cigarette smoke only after birth are twice as likely to die of SIDS. Use of illegal drugs during pregnancy is another major risk factor.

Despite the various risk factors, the cause of SIDS remains unknown. Many researchers suggest that infants who die of SIDS are born with undetected conditions that make them more vulnerable to physical and environmental stresses. Most theories about the actual cause of death focus on difficulties with breathing. Insufficient exchange of oxygen and carbon dioxide in the lungs may be caused by blockage of the air passages, faulty breathing reflexes, or problems with the brain's regulation of breathing. Abnormal heart rates or rhythms may also be involved in these deaths. A 1998 study by researchers in Italy showed that babies who have a heartbeat abnormality known as long Q-T syndrome are 41 times as likely to die of SIDS as babies with normal heartbeats. Other possible contributing factors include poor muscle tone and unstable body temperature.

In cases of sudden, unexpected infant deaths, SIDS is listed as the cause of death only after all other possible causes are eliminated including brain defects, heart disease, acute (sudden) illness like meningitis, or child abuse. A thorough examination of the infant, including a complete autopsy, examination of the infant's sleeping environment, and review of the medical history of both the victim and parents, is conducted in all suspected SIDS cases.

While the cause of SIDS remains unknown, recent advances in prevention have targeted significant risk factors. In 1992 the American Academy of Pediatrics (AAP) recommended that infants be placed on their backs to sleep. One study found that since this recommendation was made public, the rate of SIDS decreased by 38 percent in the United States between 1992 and 1996. This AAP recommendation is for healthy infants only. A physician may suggest another sleeping position if an infant has a condition that affects breathing or swallowing.

An infant's crib should be furnished with a firm mattress that fits snugly against the crib's sides. Infants sleeping facedown on soft surfaces such as water beds, beanbags, or pillows, may form a hollow pocket near the face on the sleeping surface. This pocket may cause infants to inhale their own carbon-dioxide-rich exhalations and suffocate from oxygen deprivation. Heavy bedding and soft stuffed animals that can trap air in the bed should also be avoided.

Research indicates that overheating from too much clothing, exceptionally warm bedding, or a hot room may significantly increase the risk of SIDS for an infant with a common cold or other infection. A constant indoor temperature of 20° to 21° C (68° to 70° F) will minimize overheating.

Breast-feeding appears to decrease the risk of SIDS, apparently because it helps prevent respiratory, gastric, and intestinal illnesses, infections, and certain immune disorders that may make infants more susceptible to SIDS. Eliminating smoking around the baby also decreases risk. A doctor may recommend the use of a heart and respiratory monitor for babies at high risk for SIDS. This machine sounds an alarm when the baby stops breathing or when the heart rate is too high or low. Infant caretakers are encouraged to learn cardiopulmonary resuscitation (CPR) in case an infant stops breathing (*see* Artificial Respiration).

SIDS is a devastating event for parents, who need support and reassurance for many months afterwards. SIDS support groups, comprised of other parents who have had similar experiences, can be particularly valuable.

Contributed By:
James A. Blackman

Reye’s Syndrome

Reye’s Syndrome, rare disease of young and teenage children that apparently occurs only after a viral infection. First described in 1963 by Australian pathologist and physician Douglas Reye, this noncontagious but dangerous disease has proven fatal in about one out of four cases. Its cause is unknown.

Symptoms of Reye's syndrome include a high fever, vomiting, liver abnormalities, and various displays of mental disorientation. Most importantly, cells in the patient's brain begin to swell. If this process goes untreated, it can lead to irreversible brain damage or to coma and death. Treatment of the brain swelling consists of relieving pressure inside the skull, if necessary by surgical techniques.

Progression of Reye's syndrome to a dangerous stage has been associated, to a statistically significant degree, with the administration of aspirin or other salicylates to children suffering from viral infections such as chicken pox and influenza. Aspirin manufacturers began placing warning labels to this effect on their products in the mid-1980s. Since that time, the incidence of the disease in the U.S. seems to have declined.

Premenstrual Syndrome

Premenstrual Syndrome (PMS), disorder characterized by a variety of physical and emotional symptoms that occur in women before menstruation. These symptoms typically begin at or after ovulation (release of an egg by the ovaries), and continue until menstruation begins.

The most common physical symptom of PMS is fatigue. Other physical symptoms may include cravings for sweet or salty foods, abdominal bloating, weight gain, sore breasts, swollen feet or hands, headaches, acne, and various gastrointestinal problems. The emotional symptoms of PMS generally include depression, irritability, anxiety, or mood swings. Approximately 2 to 5 percent of women have severe PMS symptoms, but many have only mild or moderate symptoms. PMS is most common in women in their 20s and 30s, and ceases entirely at menopause.

Many researchers believe that PMS is the result of changes in estrogen and progesterone hormone levels that occur during the menstrual cycle. Among other effects these hormonal changes may cause the body to retain more sodium and fluid, leading to swelling or bloating. Recent research suggests that low levels of certain neurotransmitters (chemicals that transmit messages between cells) that affect a woman's sense of well-being and relaxation, and also stimulate the central nervous system may contribute to the emotional symptoms.

PMS is diagnosed by recording symptoms for several menstrual cycles. Symptoms that occur in a predictable pattern (starting before menstruation, then disappearing when it begins) usually indicate PMS. A doctor may perform a physical exam, if necessary, to rule out the possibility that symptoms indicate the presence of disease.

Treatment of PMS involves finding the remedy or combination of remedies that work for each individual. For some women, dietary changes, such as eliminating caffeine and alcohol, and cutting back on salt, will alleviate symptoms. Doctors often recommend vigorous, aerobic exercise because it is thought that exercise stimulates the body's release of various neurotransmitters, supplementing those that are at low levels.

Medications used to treat PMS include diuretics (to ease fluid retention), oral contraceptives (for hormone control), and anti-anxiety medication, for extreme irritability. Low doses of progesterone (a reproductive system hormone) have been used on an experimental basis. Researchers also have conducted experiments using drugs that affect neurotransmitter levels.

Munchausen Syndrome

I INTRODUCTION

Munchausen Syndrome, mental illness in which a person intentionally deceives health-care professionals into believing he or she is ill. People with this disorder migrate from hospital to hospital, attempting to get admitted by continually faking or producing symptoms of illness. They embellish their medical histories with dramatic stories to attract attention, and they willingly undergo tests and treatments—even surgery—for contrived physical or psychological ailments.

The term "Munchausen's syndrome" was coined in 1951 by British physician Richard Asher, who adapted it from the surname of Baron Münchhausen. The baron, a German cavalry officer in the 18th century, had acquired an erroneous reputation as a pathological liar who greatly exaggerated his adventures.

People with Munchausen syndrome intentionally mislead others about their health and assume the sick role typically because they want to be cared for and nurtured. In contrast, patients with *hypochondriasis* are preoccupied with illness because they misinterpret bodily sensations as evidence of serious disease (*see* Hypochondria). In *malingering,* people fabricate medical symptoms or illnesses in pursuit of specific external goals, such as qualification for disability payments or evasion of military service.

Munchausen syndrome represents the most extreme and chronic variant of a group of similar mental ailments called factitious disorders. Doctors diagnose factitious disorders in approximately 1 percent of hospital patients who receive psychiatric evaluations. Individuals with Munchausen syndrome tend to be men who are unmarried, unemployed, and estranged from their families.

II SYMPTOMS

People with Munchausen syndrome or other factitious disorders may claim medical symptoms in a variety of ways. These include (1) total fabrication, such as falsely claiming to be HIV-positive; (2) simulation, such as mimicking a seizure; (3) illness aggravation, such as manipulating a wound so it will not heal; and (4) illness induction, such as injecting oneself with bacteria to cause infection. The maladies may either be relatively common, or so esoteric that most physicians would have only a passing familiarity with them. The most frequently fabricated physical signs include anemia, rash, fever, and bleeding. Factitious psychological disorders, in which people fabricate emotional symptoms such as depression, are much less common.

In *Munchausen syndrome by proxy,* also called factitious disorder by proxy, one person (usually a parent) produces symptoms in another (usually his or her child) to experience the sick role vicariously. For example, a mother may induce vomiting or diarrhea in her child with over-the-counter drugs, then present the child for treatment while denying knowledge of the origin of the problem. The parent also may falsely report symptoms and alter laboratory data. Ailments commonly falsified or induced in Munchausen syndrome by proxy include seizures, apnea (cessation of breathing), vomiting, and fever.

III CAUSES

Many psychiatrists believe that Munchausen patients have suffered emotional neglect or deprivation in their past and that their "disease forgery" becomes a way of receiving attention and support. At the same time, people with this disorder combat a poor sense of self-identity by assuming the well-defined role of a sick person. Duping medical professionals also helps stifle feelings of weakness and vulnerability. A hypothesis that brain abnormalities cause Munchausen syndrome remains unproved.

IV TREATMENT

Patients diagnosed with Munchausen syndrome rarely consent to treatment of their disorder. Instead, when confronted with their ruse, they generally flee and continue their deceptions elsewhere. Nonconfrontational strategies, such as behavior modification, have been effective in selected cases. For motivated patients, psychotherapy can both enhance insight and provide the nurturance they once obtained through falsified illness. Medications such as antidepressants may be effective when the patients have additional mental illnesses. When addressing Munchausen syndrome by proxy, doctors focus on ensuring the ongoing safety of the child.

Contributed By:
Marc D. Feldman

Marfan Syndrome

Marfan Syndrome, rare inherited disorder of the supporting, or connective, tissues of the body, resulting in abnormalities of the eyes, lungs, heart, bones, and blood vessels. People with Marfan syndrome have a number of characteristic features, including unusually long, slender arms, legs, and fingers; nearsightedness; and the tendency for the lenses of the eye to be torn from their supports, or dislocated. Weaknesses in the blood vessels of Marfan patients often lead to severe problems of the heart and the largest artery in the body, the aorta. In Marfan patients, a weak aorta may stretch or form a bulge, called an aneurysm, in the vessel wall. During periods of physical activity, the resulting high blood pressure can cause the affected aorta to rupture and the patient may die.

Historically, people with Marfan syndrome died from complications of the heart or aorta by age 50. Today—with early diagnosis, heart monitoring, and proper medical treatment—Marfan patients live longer. The National Marfan Foundation estimates that at least 200,000 people in the United States are affected with the disorder.

Marfan syndrome is a genetic disorder that is passed from one generation to the next by a single, dominant gene. This means that a child who has one parent with the Marfan syndrome has a 50 percent chance of inheriting the disorder. In 1991 researchers identified the gene that they believe causes the syndrome. This gene is responsible for the production of *fibrillin,* a protein found in connective tissue that holds cells together. When this gene is defective, the connective tissue either does not contain enough fibrillin or contains an ineffective form of the protein. As a result, the connective tissues are weak and unable to tolerate normal stresses.

Doctors diagnose Marfan syndrome based on a physical examination of the bones and joints, an eye exam, and an echocardiogram, an ultrasound picture of the heart. They also take a complete family medical history to determine if the patient's relatives may have health problems that could be attributable to undiagnosed Marfan syndrome.

Because there is no cure for Marfan syndrome, treatment is aimed at minimizing the risk of injury to the heart and aorta. Treatment generally includes avoiding strenuous exercise; undergoing routine echocardiograms to monitor the size and function of the heart and aorta; taking medications that reduce the risk of injury to the aorta by lowering blood pressure; and, in rare cases, surgical replacement of the aorta.

Klinefelter's Syndrome

Klinefelter's Syndrome, genetic disease affecting 1 in 850 males. It occurs when a male inherits an extra X, or female, sex chromosome that interferes with the development of male characteristics. Klinefelter's syndrome is characterized by enlarged breasts (gynecomastia), little or no facial and body hair, a small penis and testes, reduced sex drive, and the inability to produce sperm. Although a child with the condition is not developmentally disabled, he may learn to speak later than other children and have difficulty learning to read and write. The disorder was first described by American endocrinologist Harry F. Klinefelter in 1942.

Both men and women normally have 23 pairs of chromosomes. One of these pairs is the sex chromosome. A female normally inherits an X chromosome from each parent so that her chromosomal complement is XX. A male inherits an X chromosome from his mother and a Y chromosome from his father so that his chromosomal complement is XY. It is the presence of the Y chromosome that determines maleness. A male with Klinefelter's syndrome inherits an extra X chromosome, giving him an abnormal chromosomal complement of XXY. In some cases, more than one extra X chromosome is inherited. The cause of Klinefelter's syndrome is unknown, although it occurs slightly more often in boys born to older mothers.

In most cases, a boy with Klinefelter's syndrome has a normal physical appearance until he reaches puberty. Diagnosis of the disorder may be delayed until physical symptoms develop, or until the adult male is tested for infertility. Diagnosis of the disorder is made by performing a chromosomal analysis in which body cells are studied in the laboratory to identify any chromosomal irregularities.

There is no treatment for Klinefelter's syndrome, although regular injections of the male sex hormone testosterone may increase muscle size and strength, stimulate the growth of facial and body hair, and produce a normal sex drive in some cases. Enlarged breasts may be reduced surgically. Reversing infertility associated with Klinefelter's syndrome may not be possible. Some men with the disorder may produce a small number of sperm, and they may benefit from modern fertility techniques in which a single sperm is injected into an egg to achieve fertilization (*see* Infertility)

Contributed By:
Mark Perloe

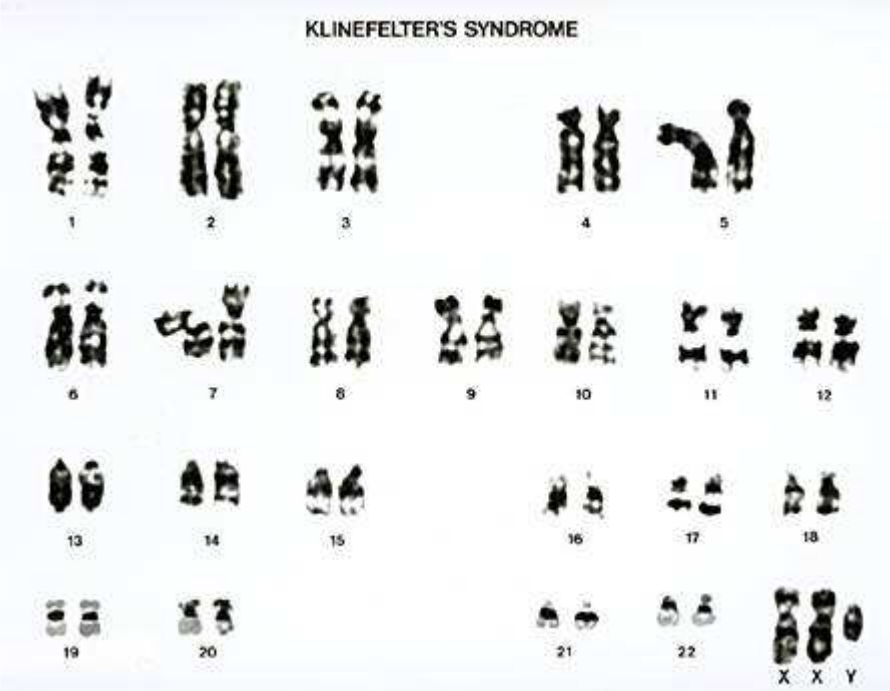


Photo Researchers, Inc.

Klinefelter's Syndrome Karyotype

This karyotype is indicative of Klinefelter's syndrome because it has three sex chromosomes—a single Y chromosome and two X chromosomes—instead of the usual two. People with Klinefelter's syndrome are always male. They are typically tall, and they may have slight breast development and small testes.

Irritable Bowel Syndrome

Irritable Bowel Syndrome (IBS), also known as *spastic colon,* recurring symptoms of constipation, diarrhea, and abdominal cramping that appear without a clear cause. IBS accounts for 30 to 50 percent of patient visits to gastroenterologists (physicians who specialize in disorders of the intestinal tract).

The diarrhea associated with IBS is not true diarrhea in that there is no increase in stool volume. Patients sometimes pass mucus with the stools and have a sensation of incomplete evacuation of the bowels following defecation.

Recurring IBS has been associated with stress, although abdominal distress is a common reaction to anxiety in many people who do not suffer from IBS.

Physicians diagnose IBS only after conducting a series of tests that rule out other gastrointestinal disorders, such as inflammatory bowel disease, intestinal parasites, and polyps. These tests include a barium enema, stool parasite culture, and sigmoidoscopy, examination of the lower intestines with a hollow, tubelike instrument passed through the anus.

There is no cure for IBS and treatment focuses on alleviating symptoms. High fiber diets or antispasmodic drugs may relieve constipation, and antidiarrheal drugs may alleviate prolonged diarrhea. Although there is no scientific evidence linking irritable bowel syndrome and the amount of fiber in the diet, some people benefit from eating a high-fiber diet, while others find reducing their carbohydrate intake helps.

Gulf War Syndrome

I INTRODUCTION

Gulf War Syndrome, collective group of medical ailments reported by veterans who served in the 1991 Persian Gulf War. The term *Gulf War syndrome* emerged in the years following the war, when up to 100,000 of the 697,000 United States troops who had served in the Persian Gulf came to Veterans Affairs (VA) Medical Centers with complaints of mysterious ailments they attributed to their wartime service. About 85 percent of these veterans were diagnosed with known illnesses, including connective tissue disorders and chronic fatigue syndrome. For the remaining 15 percent, however, VA doctors have been unable to provide either a definitive diagnosis or an effective therapy. The majority of those with Gulf War syndrome are United States veterans, but similar complaints have been reported by veterans from other countries, such as Britain and Canada, who fought in the Persian Gulf War.

II SYMPTOMS

Veterans with the syndrome suffer from various combinations of symptoms in 12 categories: fatigue, skin problems, muscle pain, joint pain, neurological problems, psychological problems, respiratory system problems, sleep disorders, gastrointestinal problems, heart problems, abnormal weight loss, and menstrual problems. Studies using magnetic resonance imaging have found that some seriously ill veterans have significantly lower levels of the brain chemical N-acetyl-aspartate, indicating damage to the parts of the brain that control reflexes, movement, memory, and emotion.

III CAUSES

Researchers do not agree on a specific cause for Gulf War syndrome. A majority now think that the syndrome is a consequence of exposure to a variety of chemicals, including smoke from burning oil wells, pesticides, anti-nerve-gas agents, and chemical and biological warfare agents. This conclusion is bolstered by laboratory studies showing that chickens exposed to at least one combination of the various chemicals that Gulf War veterans encountered can develop symptoms resembling

those of Gulf War syndrome. Some researchers believe that stress may be the primary cause of the syndrome.

The chemical warfare agents implicated in Gulf War syndrome are nerve gases, such as the organophosphate gas called sarin, which kills by disabling the central nervous system. Biological warfare agents may also have been used in the Gulf War—examples are the lethal bacteria that cause anthrax and botulism. Iraq is known to have accumulated large stores of both chemical and biological agents before the war, and as many as 100,000 troops were exposed to low levels of nerve gases when weapons containing them were destroyed at the Khumaysah complex in southern Iraq.

The various military forces taking part in the war were themselves sources of chemicals that may have harmed veterans. For example, U.S. troops were exposed to the delousing agent lindane and to the pesticides DEET and permethrin, which were used to shield them against insects. In addition, U.S. soldiers were inoculated with an experimental drug called pyridostigmine bromide to help protect them against nerve gases. Some British troops were housed in tents that had been heavily sprayed with organophosphates, chemicals intended to kill insects but which may cause nerve damage in humans.

IV CONTROVERSY

The U.S. government has been slow to acknowledge that soldiers were exposed to chemical warfare agents or that Gulf War syndrome exists. Military officials at first denied that any soldiers had been exposed to chemical warfare agents, but in 1995 they conceded that 5,000 soldiers might have been exposed at the Khumaysah weapons site. Over the next two years, that estimate was gradually increased to 100,000. Initial studies by VA physicians also found no evidence that Gulf War soldiers suffered any unusual disorders. Nevertheless, two 1996 studies—one by the U.S. Centers for Disease Control and Prevention (CDC), the other by the U.S. Navy—concluded that the phenomenon was real. A 1997 investigation by the General Accounting Office confirmed the findings of the 1996 studies. That report also criticized earlier investigations by the military and a special White House panel, charging that those groups did not want to find evidence that exposure to chemical agents may be a cause of the illness.

Today most authorities agree that the syndrome is real. A 1999 report underwritten by the U.S. Department of Defense concluded that pyridostigmine bromide may be responsible for the many unexplained illnesses associated with Gulf War syndrome. As a result of this report, a number of government-sponsored laboratories have initiated additional studies into the drug’s effects. The government has expanded its research panel on the syndrome from 12 members to 110 and is more actively searching for both causes and treatments. Meanwhile, Gulf War veterans whose illnesses began within ten years of the war are eligible for full medical benefits.

Contributed By:
Thomas H. Maugh II

Guillain-Barré Syndrome

Guillain-Barré Syndrome, relatively rare disease of unknown cause affecting the peripheral nervous system, especially the ventral roots of the spinal cord, and characterized by a flaccid paralysis. This condition can strike at any age, and both sexes are equally prone to the disorder. In the United States, this rare syndrome affects about one person in 100,000. Onset of the disease frequently follows a mild respiratory or gastrointestinal infection by one to three weeks, indicating that an autoimmune response of some kind may be involved.

Early symptoms include fever, malaise, nausea, and muscular weakness. The paralysis that follows is usually accompanied by sensations of tingling and numbness. The disease may reach an acute phase during which mechanical ventilation is required to avoid respiratory failure.

No specific treatment is known. Improvement begins spontaneously; recovery usually takes place within a few weeks or months. With proper care, mortality is less than 5 percent, and the prognosis for complete recovery is good.

Fetal Alcohol Syndrome

I INTRODUCTION

Fetal Alcohol Syndrome (FAS), mild to severe mental and physical damage to the fetus (the unborn child in the mother’s uterus) caused by the mother’s use of alcohol during pregnancy. FAS affects about 1 to 3 in every 1,000 live births worldwide, and is the leading known cause of mental retardation in the Western world. French researchers at the University of Nantes in 1968 were the first to make a connection between maternal use of alcohol during pregnancy and birth defects in children. Five years later, American geneticists at the University of Washington in Seattle termed this condition fetal alcohol syndrome.

Children with FAS are small in size and weight at birth and have slow growth rates throughout their development. A child with FAS has characteristic facial features that may include short eye slits, a flattened midface, a smooth and elongated space between the nose and mouth, and a narrow upper lip. Children diagnosed with FAS

show evidence of damage to the central nervous system that may be in the form of mental retardation, learning disabilities, developmental disabilities, seizures, or small head size. A child with FAS may develop visual and hearing problems, heart defects and other physical problems, and behavioral problems.

Researchers have found that some individuals who were exposed to alcohol during fetal development show only some of the characteristics of FAS. These individuals are described as having fetal alcohol effects (FAE). However, both FAS and FAE individuals may have some degree of brain damage.

II HOW ALCOHOL AFFECTS THE FETUS

Researchers have proven that alcohol is toxic to the fetus, although exactly how alcohol causes damage is not fully understood. Alcohol can harm fetal cells. It also affects the placenta, the organ through which the fetus absorbs oxygen and nutrients from the mother, reducing the blood flow to the fetus and causing a severe shortage of oxygen.

The extent to which a fetus is damaged by exposure to alcohol depends on when the mother consumed alcohol during her pregnancy, and how much alcohol she consumed, among other factors. Studies of pregnant animals that were fed alcohol have led researchers to conclude that major physical defects in the human embryo, the early developing organism, can be caused by exposure to alcohol in the first trimester—that is, the first three months of pregnancy. Decreased fetal growth is associated with exposure to alcohol in the third trimester. Brain damage can result from exposure of the fetus to alcohol at any point during the pregnancy.

Researchers know that the more alcohol the mother drinks and the longer the fetus is exposed to the mother’s alcohol consumption, the more severe will be the child’s birth defects. Binge drinking, or heavy alcohol consumption at one sitting, is particularly hazardous to the fetus, because very high levels of alcohol enter the mother’s blood stream, and the alcohol is passed into the blood of the fetus through the placenta.

The United States surgeon general recommends that women stop drinking alcohol entirely during pregnancy. Women who are trying to become pregnant, or who suspect they are pregnant, are urged to stop using alcohol in order not to damage the developing embryo.

Contributed By:
James A. Blackman

Down Syndrome

Down Syndrome, chromosomal disorder that results in mild to severe learning disabilities and physical symptoms that include a small skull, extra folds of skin under the eyes, and a flattened nose bridge. Muscle tone throughout the body is usually low. The condition was formerly known as “mongolism” because the features of people with Down syndrome were thought to resemble those of Mongolian Asians. This term is now considered offensive and inappropriate and is no longer used.

Down syndrome occurs in about 1 out of every 800 births worldwide. In the United States each year, about 1,600 babies are born with this condition. Down syndrome results when a person inherits all or part of an extra copy of chromosome 21. This can occur in a variety of ways, the causes of which are unknown. The most common chromosomal abnormality that produces Down syndrome (accounting for about 95 percent of all cases) is Trisomy 21, a defect in which an extra, third copy of chromosome 21 is present in every cell in the body. The risk of Trisomy 21 is directly related to the age of the mother. The number of Down syndrome births is relatively low for 18-year-old mothers—about 1 in 2,100 births. In the later childbearing years the risk increases significantly—from 1 in 1,000 births for 30-year-old women to 1 in 100 births for 40-year-old women.

Two other chromosomal abnormalities cause Down syndrome and occur in about 2 to 3 percent of all cases. The first, translocation, takes place when a child inherits a small, extra piece of the 21st chromosome that is attached to another chromosome. If, in addition to the translocation, two normal 21st chromosomes are also present, the person will have some of the features of Down syndrome. If there is only one normal 21st chromosome, the person will not display symptoms but the children may inherit Down syndrome. Mosaic Down syndrome results from a second type of chromosomal abnormality in which only some cells in the body have an extra chromosome.

There is no cure for Down syndrome. However, prenatal tests are available to identify fetuses with the disorder. The American College of Obstetricians and Gynecologists recommends that the so-called triple-screen blood test be offered to all pregnant women. This test measures the levels of three chemicals in the blood of the pregnant woman to indicate the baby's risk of Down syndrome. If the risk is high, amniocentesis, a procedure for removing a sample of the amniotic fluid surrounding the fetus, is administered to confirm the findings from the blood tests. Fetal cells are present in the amniotic fluid and can be checked for the presence of the chromosomal disorder.

People with Down syndrome are subject to a variety of medical conditions. Heart abnormalities that may require surgery are present in about half of all Down syndrome cases. Thyroid problems (underproduction or overproduction of thyroid hormones) affect 10 to 20 percent of people with Down syndrome, but these

problems respond well to treatment. The risk of acute leukemia is somewhat increased, although treatment is successful in the majority of cases.

There have been dramatic increases in the survival rates of people with Down syndrome since the 1970s. As the risks of medical problems specific to Down syndrome have become known, doctors are now able to recognize those problems earlier, and develop more effective treatments. Today, 44 percent of people with Down syndrome survive to age 60, and this life expectancy is slowly approaching that of people without Down syndrome.

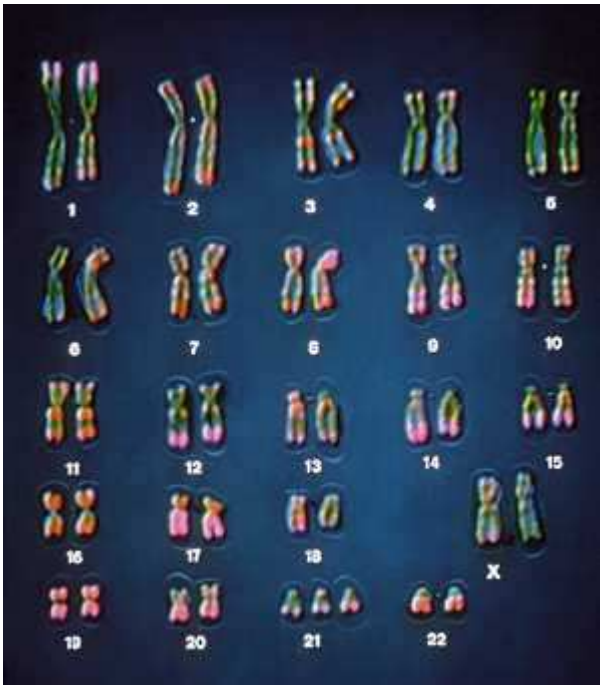
Although people with Down syndrome have a range of learning disabilities, physicians, educators, and parents now recognize that these people's achievements may be most influenced by what is expected of them. This so-called environmental expectation is perhaps the most important factor in determining the educational and vocational potential of people with Down syndrome. On the other hand, intelligence-quotient test scores, once considered an authoritative indicator of educational potential, are now seen to be of questionable value.

Educational and vocational opportunities have also advanced. In the recent past, children with Down syndrome were relegated to institutions, receiving minimal social interaction or educational opportunities. Today, children with Down syndrome usually remain with their families and are enrolled in public schools. Often they attend regular classes and learn skills such as reading and writing alongside children without Down syndrome. Adults with Down syndrome are employed in a range of fields. Some may live in supervised group homes, while others live independently.

Contributed By:
Phil Mattheis

Down Syndrome - Trisomy 21

Normally a fertilized egg possesses only two copies of each chromosome. Down syndrome is a chromosomal disorder in which, in some cases, there are three copies of the 21st chromosome, a defect known as Trisomy 21. Down syndrome causes certain learning disabilities and physical symptoms.



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Early symptoms include fever, malaise, nausea, and muscular weakness. The paralysis that follows is usually accompanied by sensations of tingling and numbness. The disease may reach an acute phase during which mechanical ventilation is required to avoid respiratory failure.

No specific treatment is known. Improvement begins spontaneously; recovery usually takes place within a few weeks or months. With proper care, mortality is less than 5 percent, and the prognosis for complete recovery is good.

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Researchers have found that some individuals who were exposed to alcohol during fetal development show only some of the characteristics of FAS. These individuals are described as having fetal alcohol effects (FAE). However, both FAS and FAE individuals may have some degree of brain damage.

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The extent to which a fetus is damaged by exposure to alcohol depends on when the mother consumed alcohol during her pregnancy, and how much alcohol she consumed, among other factors. Studies of pregnant animals that were fed alcohol have led researchers to conclude that major physical defects in the human embryo, the early developing organism, can be caused by exposure to alcohol in the first trimester—that is, the first three months of pregnancy. Decreased fetal growth is associated with exposure to alcohol in the third trimester. Brain damage can result from exposure of the fetus to alcohol at any point during the pregnancy.

Researchers know that the more alcohol the mother drinks and the longer the fetus is exposed to the mother's alcohol consumption, the more severe will be the child's birth defects. Binge drinking, or heavy alcohol consumption at one sitting, is particularly hazardous to the fetus, because very high levels of alcohol enter the mother's blood stream, and the alcohol is passed into the blood of the fetus through the placenta.

The United States surgeon general recommends that women stop drinking alcohol entirely during pregnancy. Women who are trying to become pregnant, or who suspect they are pregnant, are urged to stop using alcohol in order not to damage the developing embryo.

Contributed By:
James A. Blackman

Cushing's Syndrome

Cushing's Syndrome, a group of similar disorders caused by excessive levels of hormones called glucocorticoids. These hormones, secreted by the adrenal cortex of the adrenal gland in the kidney, aid carbohydrate processing and affect many other body functions. Symptoms include a red, moon-shaped face; obesity; easily bruised skin; poor healing of wounds; and increased susceptibility to infection. Muscles become weak and wasted, osteoporosis (loss of normal bone density) may develop, and glucose intolerance that can lead to diabetes may occur. Other symptoms include hypertension, acne, amenorrhea in women, and euphoria or other psychological symptoms. The disorder was first described by Harvey Cushing, an American physician, in 1932.

Normally the levels of adrenocorticotropic hormone (ACTH) in the bloodstream control the amount of glucocorticoids secreted by the adrenal cortex. ACTH is secreted by the pituitary gland in response to the body's demand for glucocorticoids. Glucocorticoids already in the blood slow down the secretion of ACTH so that when glucocorticoid concentrations are at a suitable level ACTH production stops. This mechanism is known as a *negative feedback loop.*

The excess of glucocorticoids that causes Cushing's syndrome can result in a number of ways. For example, it may result from a tumor in the pituitary gland. A pituitary tumor is not affected by negative feedback and secretes large amounts of ACTH even when there are already high levels of glucocorticoids in the blood. The ACTH stimulates the adrenal cortex to make glucocorticoids, resulting in an increase in glucocorticoid concentrations. High levels of ACTH can also result from a tumor outside the pituitary gland. For example, an oat-cell tumor in the lung secretes ACTH, which in turn triggers an increase in the secretion of glucocorticoids.

Cushing's syndrome also can occur when the adrenal cortex itself malfunctions. For example, part of the adrenal cortex may produce excessive amounts of glucocorticoids and thus inhibit the pituitary secretion of ACTH. In rare cases, a tumor of the adrenal gland may cause Cushing's syndrome.

In addition, Cushing's syndrome is a common side effect of prolonged glucocorticoid treatment for another condition. Glucocorticoids are used as antiinflammatory and immunosuppressive drugs for the treatment of rheumatoid arthritis, severe asthma, and many other diseases.

Treatment of Cushing's syndrome depends on its cause, so accurate diagnosis is essential. If it is caused by the administration of glucocorticoids, the drug treatment may be gradually tapered off. If the cause is a pituitary tumor, the tumor can be surgically removed or treated with radiotherapy. If the cause is not in the pituitary gland then it may be possible to remove the adrenal cortex or to treat the symptoms of the disease with drugs that inhibit the glucocorticoids.

Chronic Fatigue Syndrome

Chronic Fatigue Syndrome (CFS), condition manifesting as a persistent or relapsing fatigue lasting six or more consecutive months. This debilitating fatigue is characteristically accompanied by a combination of associated symptoms, including impaired concentration, short-term memory loss, muscle and joint pain, and sleep disturbances. CFS has previously been known by names such as chronic Epstein-Barr virus (EBV) disease, chronic fatigue immune dysfunction syndrome, epidemic neuromyesthenia, and myalgic encephalomyelitis.

Estimates of the incidence of CFS in the United States range from 4 to 265 of every 100,000 adults. Eighty percent of the diagnosed cases occur in white women, with the average age of onset about 30 years. There is no evidence that CFS can be transmitted from person to person, and pets do not seem to be involved in transmitting the illness.

The cause of CFS is unknown. Some viruses that can establish a chronic infection leading to fatigue and stress, such as EBV, have been implicated. Several other viruses, including human T-cell leukemia virus (HTLV), human herpesvirus-6, and enteroviruses, have also been investigated as the possible cause. Presently, CFS is diagnosed by excluding other known illnesses with similar symptoms. This method of diagnosis is controversial because it is not always possible to confirm that an individual has CFS and not some other fatigue-causing disorder, such as depression or fibromyalgia.

Supportive medications are available for relieving many of the symptoms of CFS, but some treatments can be dangerous if the diagnosis is incorrect. There is no known cure. The course of the illness varies widely among people with CFS: Some become progressively worse, some experience partial improvement, and others recover completely.

Contributed By:
Thomas Murill Folks

Carpal Tunnel Syndrome

Carpal Tunnel Syndrome, a painful and disabling disorder characterized by inflammation and swelling in the tendons that run through the narrow carpal tunnel in the wrist, and one of the most common of repetitive stress injury. Numbness, tingling, and pain in the base of the thumb and the first three fingers results from the compression of a nerve that shares the carpal tunnel. The syndrome, categorized by the World Health Organization as a work-related musculoskeletal disorder, is caused by excessive and unrelieved repetition of movements that in themselves appear innocuous, such as cutting meat or typing on a computer keyboard. In addition to high frequency of repetition and lack of rest periods, factors that increase risk of hand-wrist damage include awkward or unnatural working posture, use of excessive force in performing a task, and emotional stress.

Carpal tunnel syndrome, one of the cumulative trauma disorders reportedly responsible for 30 to 40 percent of worker's compensation claims in the early 1990s, afflicts burgeoning numbers of office workers. Almost half of all carpal tunnel syndrome cases result in 31 days or more of work loss in the United States. The field of health care responded to this affliction with hand clinics designed to rehabilitate disabled workers. Treatment includes rest, exercises, wrist splints, anti-inflammatory medications, learning stress-reducing movement techniques, making adjustments to the individual's workstation, and surgery to reduce pressure on the afflicted nerve.

Acquired Immunodeficiency Syndrome

I INTRODUCTION

Acquired Immunodeficiency Syndrome (AIDS), human viral disease that ravages the immune system, undermining the body’s ability to defend itself from infection and disease. Caused by the human immunodeficiency virus (HIV), AIDS leaves an

infected person vulnerable to opportunistic infections. Such infections are harmless in healthy people, but in those whose immune systems have been greatly weakened, they can prove fatal. Although there is no cure for AIDS, new drugs are available that can prolong the life spans and improve the quality of life of infected people.

Infection with HIV does not necessarily mean that a person has AIDS. Some people who have HIV infection may not develop any of the clinical illnesses that define the full-blown disease of AIDS for ten years or more. Physicians prefer to use the term *AIDS* for cases where a person has reached the final, life-threatening stage of HIV infection.

II PREVALENCE

AIDS was first identified in 1981 among homosexual men and intravenous drug users in New York and California. Shortly after its detection in the United States, evidence of AIDS epidemics grew among heterosexual men, women, and children in sub-Saharan Africa. AIDS quickly developed into a worldwide epidemic, affecting virtually every nation. By 2000 an estimated 34.7 million adults and 1.4 million children worldwide were living with HIV infection or AIDS. The World Health Organization (WHO), a specialized agency of the United Nations (UN), estimates that from 1981 to the end of 2000 about 21.8 million people died as a result of AIDS. More than 4.3 million of those who died were children under the age of 15.

A North America

In the United States about 40,000 new HIV infections occur each year. More than 30 percent of these infections occur in women, and 60 percent occur in ethnic minorities. In 2000 about 800,000 to 900,000 U.S. residents were infected with HIV, and about 300,000 people were living with full-blown AIDS. In Canada about 4,200 new HIV infections occur each year. About 23 percent of these infections occur in women. In 2000 about 40,000 Canadians were living with HIV infection or full-blown AIDS.

The incidence of new cases of HIV infections and AIDS deaths has significantly decreased in Canada and the United States since 1995. This decrease is attributed to the availability of new drug treatments and public health programs that target people most at risk for infection. But while the overall rate of HIV infection seems to be on a downturn, certain populations appear to be at greater risk for the disease. In the United States in 1987, Caucasians accounted for 60 percent of AIDS cases and blacks and Hispanics only 39 percent. But by 2000 the trend had reversed: 38 percent of new cases were diagnosed in Caucasians and 61 percent in blacks and Hispanics. Likewise the number of female AIDS patients in the United States has increased significantly in recent years, from 7 percent of all AIDS cases in 1985 to 30

percent in 2000. In the United States, African American and Hispanic women accounted for 82 percent of AIDS cases among women in 2000.

B Europe

In western Europe the first cases of AIDS were detected in the early 1980s, and by the late 1990s, at least 30,000 new HIV infections occurred each year. In 2000 more than 540,000 western Europeans were HIV positive, and 20 percent of these cases were women. Before the dissolution of the Union of Soviet Socialist Republics (USSR) in 1991, eastern Europe reported few HIV cases. But since 1995, HIV infection has spread rapidly in cities of several eastern European countries, including Ukraine, Belarus, and Moldova. The WHO estimates that the total number of HIV infections in this region may have risen from less than 30,000 in 1995 to more than 700,000 in 2000.

C Developing Nations

While cases of AIDS have been reported in every nation of the world, the disease affects some countries more than others. More than 95 percent of all HIV-infected people live in the developing world. In these areas, the disease has sapped the populations of young men and women who form the foundation of the labor force. Most die while in the peak of their reproductive years. Moreover, the epidemic has overwhelmed health-care systems, increased the number of orphans, and caused life expectancy rates to plummet. These problems have reached crisis proportions in some parts of the world already burdened by war, political upheaval, or unrelenting poverty.

Nowhere is this better demonstrated than in sub-Saharan Africa, where the number of AIDS cases far exceeds that of all other geographic regions. Of the estimated 16,000 HIV infections that occur each day worldwide, 7,500 of them occur in sub-Saharan Africa. More than 70 percent of all people infected with HIV live in this region. In some countries in the southern part of the continent, including Botswana, Namibia, Swaziland, and Zimbabwe, as much as 25 percent of the population has HIV infection or AIDS.

In Asia the rates of HIV infection remain low relative to many other areas, but the number of reported cases markedly increased in recent years. Health officials fear the virus will affect more people if it spreads through China and India, the world's two most populous countries. For example, 1992 marked the first reported cases of HIV infection in India. By the end of 1999 nearly 4 million adults in India were HIV positive. These cases were mostly confined to 10 of the nation's states, while the remaining 24 states reported low infection rates. HIV infection in India initially was reported primarily in prostitutes, but it has quickly spread to the general population in less than five years. Health officials fear that without public education programs,

cases of HIV infection will escalate over the next decade, causing the AIDS epidemic in India to dwarf the problems seen in sub-Saharan Africa.

In 2000 the WHO estimated that China had 500,000 HIV-positive people in a population of more than 1 billion. However, public health experts are concerned by the fast-rising number of new infections among intravenous drug users who share infected needles. In 2000 HIV prevalence among intravenous drug users ranged from 44 percent to 85 percent in selected communities of drug users in both Yunnan, in southern China, and Xinjiang, in northwestern China. The incidence of HIV infection will likely be exacerbated by the growing sex industry in China. Surveys indicate that as many as 4 million prostitutes work in China. Of these, five out of ten never use a condom to protect themselves or their clients from HIV infection or other sexually transmitted infections. In rural areas of China the incidence of HIV infection is rising because many poverty-stricken people regularly sell their blood. The people who buy the blood use unsterile methods to draw blood, including reusing contaminated needles, which can spread HIV infection.

In Latin America and the Caribbean region nearly 1.8 million people have been diagnosed with HIV infection or AIDS, twice the incidence in the United States and Canada. In Mexico, 150,000 people have been diagnosed with HIV infection or AIDS, and the disease is the third leading cause of death in men aged 20 to 34. Honduras, which accounts for less than a fifth of the population in Central America, reports more than half of the AIDS cases in that region. In the state of São Paolo, Brazil, AIDS has been the leading cause of death among women aged 20 to 34 since 1992.

III CAUSE

AIDS is the final stage of a chronic infection with the human immunodeficiency virus. There are two types of this virus: HIV-1, which is the primary cause of AIDS worldwide, and HIV-2, found mostly in West Africa. On its surface, HIV carries a protein structure that recognizes and binds only with a specific structure found on the outer surface of certain cells. HIV attacks any cell that has this binding structure. However, white blood cells of the immune system known as T cells, which orchestrate a wide variety of disease-fighting mechanisms, are especially vulnerable to HIV attack. Particularly vulnerable are certain T cells known as CD4 cells. When HIV infects a CD4 cell, it commandeers the genetic tools within the cell to manufacture new HIV virus. The newly formed HIV virus then leaves the cell, destroying the CD4 cell in the process. No existing medical treatment can completely eradicate HIV from the body once it has integrated into human cells.

The loss of CD4 cells endangers health because these immune cells help other types of immune cells respond to invading organisms. The average healthy person has over 1,000 CD4 cells per microliter of blood. In a person infected with HIV, the virus steadily destroys CD4 cells over a period of years, diminishing the cells' protective ability and weakening the immune system. When the density of CD4 cells drops to

200 cells per microliter of blood, the infected person becomes vulnerable to any of about 26 opportunistic infections and rare cancers, which take advantage of the weakened immune defenses to cause disease.

IV HOW HIV INFECTION SPREADS

Scientists have identified three ways that HIV infections spread: sexual intercourse with an infected person, contact with contaminated blood, and transmission from an infected mother to her child before or during birth or through breastfeeding.

A Sex with an Infected Person

HIV transmission occurs most commonly during intimate sexual contact with an infected person, including genital, anal, and oral sex. The virus is present in the infected person's semen or vaginal fluids. During sexual intercourse, the virus gains access to the bloodstream of the uninfected person by passing through openings in the mucous membrane—the protective tissue layer that lines the mouth, vagina, and rectum—and through breaks in the skin of the penis. In the United States and Canada, HIV is most commonly transmitted during sex between homosexual men, but the incidence of HIV transmission between heterosexual men and women has rapidly increased. In most other parts of the world, HIV is most commonly transmitted through heterosexual sex.

B Contact with Infected Blood

Direct contact with HIV-infected blood occurs when people who use heroin or other injected drugs share hypodermic needles or syringes contaminated with infected blood. Sharing of contaminated needles among intravenous drug users is the primary cause of HIV infection in eastern Europe, particularly in Ukraine, Russia, Belarus, and Moldova. Epidemics of HIV infection among drug users have also emerged in Georgia, Armenia, Azerbaijan, and Kazakhstan in Central Asia.

Less frequently, HIV infection results when health professionals accidentally stick themselves with needles containing HIV-infected blood or expose an open cut to contaminated blood. Some cases of HIV transmission from transfusions of infected blood, blood components, and organ donations were reported in the 1980s. Since 1985 government regulations in the United States and Canada have required that all donated blood and body tissues be screened for the presence of HIV before being used in medical procedures. As a result of these regulations, HIV transmission caused by contaminated blood transfusion or organ donations is rare in North America. However, the problem continues to concern health officials in sub-Saharan Africa. Less than half of the 46 nations in this region have blood-screening policies. By some estimates only 25 percent of blood transfusions are screened for the

presence of HIV. WHO hopes to establish blood safety programs in more than 80 percent of sub-Saharan countries by 2003.

C Mother-to-Child Transmission

HIV can be transmitted from an infected mother to her baby while the baby is still in the woman's uterus or, more commonly, during childbirth. The virus can also be transmitted through the mother's breast milk during breastfeeding. Mother-to-child transmission accounts for 90 percent of all cases of AIDS in children. Mother-to-child transmission is particularly prevalent in Africa, where the number of women infected with HIV is ten times the rate found in other regions. Studies conducted in several cities in southern Africa in 1998 indicate that up to 45 percent of pregnant women in these cities carry HIV.

D Misperceptions About HIV Transmission

The routes of HIV transmission are well documented by scientists, but health officials continually grapple with the public's unfounded fears concerning the potential for HIV transmission by other means. HIV differs from other infectious viruses in that it dies quickly if exposed to the environment. No evidence has linked HIV transmission to casual contact with an infected person, such as a handshake, hugging, or kissing, or even sharing dishes or bathroom facilities. Studies have been unable to identify HIV transmission from modes common to other infectious diseases, such as an insect bite or inhaling virus-infected droplets from an infected person's sneeze or cough.

V SYMPTOMS

Without medical intervention, AIDS progresses along a typical course. Within one to three weeks after infection with HIV, most people experience flu-like symptoms, such as fever, sore throat, headache, skin rash, tender lymph nodes, and a vague feeling of discomfort. These symptoms last one to four weeks. During this phase, known as acute retroviral syndrome, HIV reproduces rapidly in the blood. The virus circulates in the blood throughout the body, particularly concentrating in organs of the lymphatic system.

The normal immune defenses against viral infections eventually activate to battle HIV in the body, reducing but not eliminating HIV in the blood. Infected individuals typically enter a prolonged asymptomatic phase, a symptom-free period that can last ten years or more. While persons who have HIV may remain in good health during this period, HIV continues to replicate, progressively destroying the immune system. Often an infected person remains unaware that he or she carries HIV and unknowingly transmits the virus to others during this phase of the infection.

When HIV infection reduces the number of CD4 cells to around 200 per microliter of blood, the infected individual enters an early symptomatic phase that may last a few months to several years. HIV-infected persons in this stage may experience a variety of symptoms that are not life-threatening but may be debilitating. These symptoms include extensive weight loss and fatigue (wasting syndrome), periodic fever, recurring diarrhea, and thrush, a fungal mouth infection. An early symptom of HIV infection in women is a recurring vaginal yeast infection. Unlike earlier stages of the disease, in this early symptomatic phase the symptoms that develop are severe enough to cause people to seek medical treatment. Many may first learn of their infection in this phase.

A Opportunistic Infections

If CD4 cell levels drop below 200 cells per microliter of blood, the late symptomatic phase develops. This phase is characterized by the appearance of any of 26 opportunistic infections and rare cancers. The onset of these illnesses, sometimes referred to as AIDS-defining complications, is one sign that an HIV-infected person has developed full-blown AIDS. Without medical treatment, this stage may last from several months to years. The cumulative effects of these illnesses usually cause death.

Often the first opportunistic infection to develop is pneumocystis pneumonia, a lung infection caused by the fungus *Pneumocystis carinii*. This fungus infects most people in childhood, settling harmlessly in the lungs where it is prevented from causing disease by the immune system. But once the immune system becomes weakened, the fungus can block the lungs from delivering sufficient oxygen to the blood. The lack of oxygen leads to severe shortness of breath accompanied by fever and a dry cough.

In addition to pneumocystis pneumonia, people with AIDS often develop other fungal infections. Up to 23 percent of people with AIDS become infected with fungi from the genus *Cryptococcus*, which cause meningitis, inflammation of the membranes that surround the brain. Infection by the fungus *Histoplasma capsulatum* affects up to 10 percent of people with AIDS, causing general weight loss, fever, and respiratory complications.

Tuberculosis, a severe lung infection caused by the bacterium *Mycobacterium tuberculosis*, typically becomes more severe in AIDS patients than in those with a healthy immune system. Between the 1950s and the late 1980s, tuberculosis was practically eradicated in North America. In the early 1990s, doctors became alarmed when incidence of the disease dramatically escalated. This resurgence has been attributed to the increased susceptibility to tuberculosis of people infected with HIV. Infection by the bacterium *Mycobacterium avium* can cause fever, anemia, and diarrhea. Other bacterial infections of the gastrointestinal tract contribute to wasting syndrome.

Opportunistic infections caused by viruses, especially members of the herpesvirus family, are common in people with AIDS. One of the herpesviruses, cytomegalovirus (CMV), infects the retina of the eye and can result in blindness. Another herpesvirus, Epstein-Barr virus (EBV), may cause certain types of blood cancers. Infections with herpes simplex virus (HSV) types 1 or 2 may result in sores around the mouth, genital area, or anus.

Many people with AIDS develop cancers. The destruction of CD4 cells impairs the immune functions that halt the development of cancer. Kaposi's sarcoma is a cancer of blood vessels caused by a herpesvirus. This cancer produces purple lesions on the skin, which can spread to internal organs and cause death. B cell lymphoma affects certain cells of the lymphatic system that fight infection and perform other vital functions. Cervical cancer is more common in HIV-infected women than in women free from infection.

A variety of neurological disorders are common in the later stage of AIDS. Collectively called HIV-associated dementia, they develop when HIV or another microbial organism infects the brain. The infection produces degeneration of intellectual processes such as memory and, sometimes, problems with movement and coordination.

B Symptoms in Children

HIV infection in children progresses more rapidly than in adults, most likely because the immune systems in children have not yet built up immunity to many infectious agents. The disease is particularly aggressive in infants—more than half of infants born with an HIV infection die before age two. Once a child is infected, the child's undeveloped immune system cannot prevent the virus from multiplying quickly in the blood. This extensive virus burden speeds the progression of the disease. In contrast, when adults become infected with HIV, their immune system generally fights the infection. Therefore, HIV levels in adults remain lower for an extended period, delaying the progression of the disease.

Children develop many of the opportunistic infections that befall adults but also exhibit symptoms not observed in older patients. Among infants and children, HIV infection produces wasting syndrome and slows growth (generally referred to as failure to thrive). HIV typically infects a child's brain early in the course of the disease, impairing intellectual development and coordination skills. While HIV can infect the brains of adults, it usually does so toward the later stages of the disease and produces different symptoms.

Children show a susceptibility to more bacterial and viral infections than adults. More than 20 percent of HIV-infected children develop serious, recurring bacterial infections, including meningitis and pneumonia. Some children suffer from repeated

bouts of viral infections, such as chicken pox. Healthy children generally develop immunity to these viral illnesses after an initial infection.

VI DETECTING AND MONITORING HIV INFECTION

Since HIV was first identified as the cause of AIDS in 1983, a variety of tests have been developed that help diagnose HIV infection as well as determine how far the infection has progressed. Other tests can be used to screen donated blood, blood products, and body organs for the presence of HIV.

Doctors determine if HIV is present in the body by identifying HIV antibodies, specialized proteins created by the immune system to destroy HIV. The presence of the antibodies indicates HIV infection because these antibodies form in the body only when HIV is present. HIV antibodies form anywhere from five weeks to three months after HIV infection occurs, depending upon the individual's immune system. The antibodies are produced continually throughout the course of the infection.

The standard test to detect HIV antibodies in the blood is the enzyme-linked immunosorbent assay (ELISA). In this test, a blood sample is mixed with proteins from HIV. If the blood contains HIV antibodies, they attach to the HIV proteins, producing a telltale color change in the mixture. This test is highly reliable when performed two to three months after infection with HIV. The test is less reliable when used in the very early stage of HIV infection, before detectable levels of antibodies have had a chance to form. Doctors routinely confirm a positive result from an ELISA test by using the Western Blot test, which can detect lower levels of HIV antibodies. In this test a blood sample is applied to a paper strip containing HIV proteins. If HIV antibodies are present in the blood, they bind to the HIV proteins, producing a color change on the paper. The combination of the ELISA and the Western Blot test is more than 99.9 percent accurate in detecting HIV infection within 12 weeks following exposure.

Once tests confirm an HIV infection, doctors monitor the health of the infected person's immune system by periodically measuring CD4 cell counts in the blood. The progressive loss of CD4 cells corresponds to a worsening of the disease as the immune system becomes increasingly impaired. Doctors also measure the viral load—the amount of the virus in the blood—using polymerase chain reaction (PCR) technology. PCR tests measure the level of viral ribonucleic acid (RNA), a type of nucleic acid, in blood to determine the rate of HIV growth in an infected person. Knowing the viral load helps doctors estimate an infected person's survival time. For example, studies show that without treatment, the average survival time for people with an HIV viral load greater than 30,000 per microliter of blood is 4.4 years, while those with a viral load below 10,000 per microliter of blood live for an average of ten years.

A modified ELISA test that detects p24 antigen, a protein produced by HIV, can determine if specific drug treatments are having a positive effect on a patient. Blood banks, plasma centers, clinical laboratories, private clinics, and public health departments also use this p24 antigen test to screen for the presence of HIV in blood, blood components, and organs before they are used in medical procedures.

VII DIAGNOSING AIDS

Physicians prefer to differentiate between people who have HIV infection and those who have AIDS. The Centers for Disease Control and Prevention (CDC), based in Atlanta, Georgia, recommends that physicians reserve the diagnosis of AIDS for HIV-infected individuals whose CD4 count falls below 200 cells per microliter of blood. A diagnosis of AIDS can also be made without confirmation of CD4 levels if someone who has no other reason for immune system damage develops an opportunistic disease.

VIII TREATMENT

While no medical treatment cures AIDS, in the relatively short time since the disease was first recognized, new methods to treat the disease have developed rapidly. Health-care professionals focus on three areas of therapy for people living with HIV infection or AIDS: antiretroviral therapy using drugs that suppress HIV replication; medications and other treatments that fight the opportunistic infections and cancers that commonly accompany HIV infection; and support mechanisms that help people deal with the emotional repercussions as well as the practical considerations of living with a disabling, potentially fatal disease.

A Antiretroviral Therapies

Understanding the specific steps in the HIV replication cycle is critical in order for scientists to develop drugs that attack vulnerable stages within the cycle. HIV belongs to a unique group of viruses known as retroviruses, so named because these viruses reverse the usual flow of genetic information within an infected cell. Most viruses store their genetic material in deoxyribonucleic acid (DNA), the double-helix structure that makes up genes. When a virus infects a cell, the viral DNA forms the template for the creation of messenger RNA, a type of ribonucleic acid. This messenger RNA directs the formation of specific proteins, and these proteins, in turn, build new virus particles (*see* Genetics). In HIV, however, genetic material is stored in two single-stranded RNA molecules. When HIV infects a cell, an enzyme called reverse transcriptase copies the genetic instructions in the virus's RNA and moves it into the DNA. This movement of genetic information from RNA to DNA is the opposite of that which occurs in most cells during protein synthesis.

Another HIV enzyme, called integrase, helps the newly formed viral DNA to become part of the structure of the infected cell's DNA. The viral DNA then forces the infected cell to manufacture HIV particles. A third HIV enzyme, called protease, packages these HIV particles into a complete and functional HIV virus. Over the last decade researchers have created a variety of drugs that block the action of some of the enzymes used in HIV replication. The three main classes of drugs used against HIV are nucleoside analogues, non-nucleoside reverse transcriptase inhibitors, and protease inhibitors.

Nucleoside analogues impede the action of reverse transcriptase, the HIV enzyme that converts the virus's genetic material into DNA. During this conversion process, these drugs incorporate themselves into the structure of the viral DNA, rendering the DNA useless and preventing it from instructing the infected cell to make additional HIV. The nucleoside analogue known as azidothymidine (AZT), which became available in 1987, was the first drug approved by the United States Food and Drug Administration (FDA) to treat AIDS. AZT slows HIV growth in the body, permitting an increase in the number of CD4 cells, which boosts the immune system. AZT also prevents transmission of HIV from an infected mother to her newborn. Since the introduction of AZT, additional nucleoside analogues have been developed, including didanosine (sold under the trade name *Videx*), zalcitabine (*HIVID*), stavudine (*Zerit*), lamivudine (*Epivir*), and abacavir (*Ziagen*). These drugs are not particularly powerful when used alone, and often their benefits last for only 6 to 12 months. But when nucleoside analogues are used in combination with each other, they provide longer-lasting and more effective results.

Non-nucleoside reverse transcriptase inhibitors (NNRTIs), introduced in 1996, use a different mechanism to block reverse transcriptase. These drugs bind directly to reverse transcriptase, preventing the enzyme from converting RNA to DNA. Three NNRTIs are available: nevirapine (*Viramune*), delavirdine (*Rescriptor*), and efavirenz (*Sustiva*). NNRTIs work best when used in combination with nucleoside analogues.

The third group of antiviral drugs, called protease inhibitors, cripples protease, the enzyme vital to the formation of new HIV. When these drugs block protease, defective HIV forms that is unable to infect new cells. Protease inhibitors are more powerful than nucleosides and NNRTIs, producing dramatic decreases in HIV levels in the blood. This reduced viral load, in turn, enables CD4 cell levels to skyrocket. The first protease inhibitor, saquinavir (*Invirase*), was approved in 1995. Since then other protease inhibitors have been approved, including ritonavir (*Norvir*), indinavir (*Crixivan*), nelfinavir (*Viracept*), and amprenavir (*Agenerase*).

A1 Drug Resistance

Clinical studies of treatment with antiretroviral drugs immediately showed that their benefits are short-lived when a single drug is used alone. This short-term effectiveness results when HIV mutates, or changes its genetic structure, becoming

resistant to the drug. The genetic material in HIV provides instructions for the manufacture of critical enzymes needed to replicate the virus. Scientists design current antiretroviral drugs to impede the activity of these enzymes. If the virus mutates, the structure of the virus's enzymes changes. Drugs no longer work against the enzymes, making the drugs ineffective against viral infection.

Genes mutate during the course of viral replication, so the best way to prevent mutation is to halt replication. Studies have shown that the most effective treatment to halt HIV replication employs a combination of three drugs taken together—for instance, a combination of two nucleoside analogues with a protease inhibitor. This regimen, called triple therapy, maximizes drug potency while reducing the chance for drug resistance. The combination of three drugs is often referred to as an AIDS cocktail. In HIV-infected patients who have undergone triple therapy, the viral loads reduced significantly, sometimes to undetectable levels. Their CD4 cell count gradually increased, and they sustained good health with no complications. With this treatment, some patients who were near death were able to return to work and normal physical activity. Triple therapy was introduced in the United States in 1996. That year AIDS deaths in the United States decreased 26 percent, the first decrease since the beginning of the epidemic. In 1997 U.S. AIDS deaths decreased by 56 percent from the year before.

Despite phenomenal success, triple therapy has some drawbacks. This multidrug therapy is quite complicated, requiring patients to take anywhere from 5 to 20 pills a day on a specific schedule. Some drugs must be taken with food, while others cannot be taken at the same time as certain other pills. Even the most organized people find it difficult to take pills correctly. Yet, just one or two lapses in treatment may cause the virus to develop resistance to the drug regimen.

Many people also find it difficult to deal with the unpleasant side effects produced by antiretroviral drugs. Common side effects include nausea, diarrhea, headache, fatigue, abdominal pain, kidney stones, anemia, and tingling or numbness in the hands and feet. Some patients may develop diabetes mellitus, while other patients develop collections of fat deposits in the abdomen or back, causing a noticeable change in body configuration. Some antiretroviral drugs produce an increase in blood fat levels, placing a patient at risk for heart attack or stroke. Some patients suffer more misery from the drug treatment than they do from the illnesses produced by HIV infection.

Perhaps the greatest drawback to triple therapy is its cost, which ranges from $10,000 to $12,000 a year. This high cost is well beyond the means of people with low incomes or those with limited health-care insurance. As a result, the most effective therapies currently available remain beyond the reach of the majority of HIV-infected people worldwide.

To decrease the toxic effects of drugs and to defer costly therapy, in 2001 United States federal health officials recommended delaying drug treatment for HIV

infection in people showing no symptoms and who have been infected with HIV for more than six months. The new guidelines call for delaying treatment until an infected person's CD4 cells fall below 350 cells per microliter of blood or the HIV viral load exceeds 30,000 per microliter of blood. Evidence suggests that delaying treatment poses no harm to infected people and, in fact, benefits them by deferring the toxic side effects of the drugs.

A2 Postexposure Prevention

Studies show that under certain circumstances, administering antiretroviral drugs within 24 hours (preferably within one to two hours) after exposure to HIV can protect a person from becoming infected with the virus. Although the effectiveness of postexposure antiretroviral therapy following sexual exposure to HIV remains uncertain, the CDC recommends that health-care personnel exposed to HIV infection from a needle stick or other accident take antiretroviral drugs.

A3 Development of New Drugs

Scientists continue to develop more powerful HIV treatments that have fewer side effects and fewer resistance problems. Some drugs under investigation block the HIV enzyme integrase from inserting viral DNA into the infected cell. Other drugs prevent HIV from binding with a CD4 cell in the first place, thereby barring HIV entry into cells.

Some scientists focus on ways to fortify the immune system. A biological molecule called interleukin-2 shows promise in boosting the immune system's arsenal of infection-fighting cells. Interleukin-2 stimulates the production of CD4 cells. If enough CD4 cells can be created, they may trigger other immune cell responses that can overpower HIV infection.

In other research, doctors hope to bolster the immune system with a vaccine. Most vaccines available today, including those that prevent measles or poliomyelitis, work by helping the body to create antibodies. Such vaccines mark specific infectious agents, such as the measles and polio viruses, for destruction. But many experts believe that an effective HIV vaccine will need to do more than just stimulate anti-HIV antibodies. Studies are underway to develop vaccines that also elevate the production of T cells in the immune system. Scientists hope that this dual approach will prime the immune system to attack HIV as soon as it appears in the body, perhaps containing the virus before it spreads through the body in a way that natural immune defenses cannot. The genetic variability of HIV frustrates efforts to develop a vaccine: A vaccine effective against one type of HIV may not work on a virus that has undergone genetic mutation.

B Treatment of Opportunistic Infections

In addition to antiretroviral therapy to combat HIV infection, effective drug treatments are available to fight many of the medical complications that result from HIV infection. Doctors try to prevent infections before they begin to avoid taxing a patient's weakened immune system unnecessarily. A doctor instructs an HIV-infected person on ways to avoid exposure to infectious agents that produce opportunistic infections common in people with a weakened immune system. Doctors usually prescribe more than one drug to forestall infections. For example, for those who have a history of pneumocystic pneumonia and a CD4 cell count of less than 200 cells per microliter, doctors may prescribe the antibiotics sulfamethoxazole and trimethoprim to prevent further bouts of pneumonia. Patients suffering from recurring thrush may be given the antifungal drug fluconazole for prolonged periods. For people with CD4 cell counts of less than 100 cells per microliter, doctors may prescribe clarithromycin or azithromycin to prevent *Mycobacterium avium* infections.

C Support Mechanisms

A person diagnosed with HIV infection faces many challenges, including choosing the best course of treatment, paying for health care, and providing for the needs of children in the family while ill. In addition to these practical considerations, people with HIV infection must cope with the emotional toll associated with the diagnosis of a potentially fatal illness. The social stigma that continues to surround a diagnosis of AIDS because of the disease's prevalence among gay men or drug users causes many people to avoid telling family or friends about their illness. People with AIDS often feel incredibly lonely as they try to cope with a devastating illness on their own. Loneliness, anxiety, fear, anger, and other emotions often require as much attention as the medical illnesses common to HIV infection.

Since the AIDS epidemic began in the United States in 1981, grassroots organizations have been created to meet the medical and emotional needs of people who have AIDS and also to protect their civil rights. The Gay Men's Health Crisis, founded in 1982, was the first nonprofit organization to provide medical, education, and advocacy services for people with AIDS. The Los Angeles Shanti Group was established in 1983 to provide emotional support and medical guidance to people with AIDS and other life-threatening illnesses. Activist organizations such as the AIDS Coalition to Unleash Power (ACT UP), founded in 1986, have been created to initiate faster change in public policies and to speed up the course of AIDS clinical research. American Foundation for AIDS Research (AMFAR), created in 1985, is the nation's leading nonprofit organization dedicated to the support of AIDS research and the advocacy of fair and compassionate AIDS-related public policies. In Canada, the AIDS Committee of Toronto (ACT) was established in 1983 by community activists intent on fighting for the civil rights of people infected with HIV. As the AIDS epidemic grew, ACT expanded its mission to help people disabled by the disease and

to spread health information to halt the spread of the disease. AIDS Vancouver (AV), also established in 1983, became the principal education, prevention, and support service organization for that city.

Counseling centers and churches provide individual or group counseling to help people with HIV infection or AIDS share their feelings, problems, and coping mechanisms with others. Family counseling can address the emotions of other family members who are disturbed by the diagnosis of HIV infection in another family member. Grief counseling also helps people who have lost friends or family members to AIDS.

In the United States and Canada, government-funded and privately funded organizations help people cope with disease. For instance, local, city-funded clinics provide AIDS testing as well as counseling to prepare people for a test result that indicates HIV infection. Health experts at clinics explain the medical progression of the illness, arrange medical appointments with health-care specialists, and help people choose appropriate treatment options. State-appointed social workers and community nonprofit organizations help people find federally funded programs that offset the high cost of medical care and child care.

The United States Congress has passed legislation to help HIV-infected individuals. In 1990 the Americans with Disabilities Act (ADA) was enacted, protecting people with disabling diseases, including AIDS, from discrimination in activities such as applying for jobs or buying a house. The Ryan White Comprehensive AIDS Resources Emergency Act was established in 1990 and reauthorized in 1996. This program provides medical and dental care, counseling, transportation, and home and hospice care for low-income or uninsured people living with AIDS. The AIDS Drug Assistance Program (ADAP) is funded in large part by this act and administered by all 50 states. It pays for costly AIDS medications for people who do not have private insurance and who are not poor enough to be eligible for Medicaid.

IX PREVENTION

With a vaccine for AIDS years away and no cure on the horizon, experts believe that the most effective treatment for AIDS is to prevent the occurrence of HIV infection. Health officials focus public education programs on altering risky behaviors linked to HIV transmission, particularly unsafe sexual practices and needle-sharing by intravenous drug users. Safe-sex campaigns sponsored by health clinics, social centers, schools, and churches encourage sexual abstinence or monogamy (sexual relations with only one partner). Education programs instruct about the proper way to use condoms to provide a protective barrier against transmission of HIV during sexual intercourse. Needle-exchange programs, which provide clean needles to drug users, enable intravenous drug abusers to avoid sharing HIV-contaminated needles. Needle-exchange programs have been widely criticized because they seem to condone illicit drug use. However, numerous U.S. government-funded studies have

indicated that such programs reduce HIV transmission without promoting greater drug use. To reduce the accidental transmission of HIV during medical procedures, both the United States and Canada have established strict guidelines for health-care settings, including the use of protective clothing and proper instrument disposal.

In the United States, the effectiveness of public education programs that target people at risk for HIV infection was well demonstrated in the gay community of San Francisco, California, in the 1980s. In 1982 and 1983, 6,000 to 8,000 people in San Francisco became infected with HIV. The gay community rallied to promote condom use and advocate monogamy through extensive education programs and public health advertisements geared for gay men. These public education programs were credited with reducing the number of gay men in San Francisco who became HIV infected. By 1993 the number of new infections declined to 1,000, and by 1999, fewer than 500 people were infected each year.

Public education about AIDS has also proven effective in other countries. Uganda was one of the first African countries to report cases of HIV infection. The first cases of AIDS were reported there in 1982, and by the late 1980s Uganda had one of the highest rates of HIV infection in the world. The Ugandan government was one of the first countries to set up a partnership with WHO to create a national AIDS control program called the AIDS Information Centre (AIC). The AIC has established extensive education programs promoting condom use and other methods to prevent HIV from spreading further. The program has also worked with community organizations to change social behaviors that increase the risk of HIV infection. The AIC promotes its message using innovative drama, song, and dance programs, a particularly effective communication method for African communities. AIC established confidential HIV testing services that provide same-day results and community counseling programs. As a result of Uganda’s quick response to the AIDS epidemic, the number of HIV infected people in that country has declined significantly since 1993, during a time when most other African nations faced a frightening increase in the incidence of HIV infection.

Public health officials have learned that education programs that teach and reinforce safe behaviors through a series of meetings are more effective than one-time exposure to public-health information provided in a class lecture, magazine article, advertisement, or pamphlet. Education programs tailored to reflect specific ethnic and cultural preferences prove even more effective. For example, the Canadian Aboriginal AIDS Network creates HIV education programs that fight the common misperception among the indigenous peoples of Canada that AIDS is primarily a disease of white, affluent people. Among indigenous communities, the network promotes programs that use colloquial language to increase awareness about safe sex practices and needle use.

X HISTORY

In the short time since the first cases of the AIDS epidemic were reported in 1981, scientists have identified the viral cause of the illness, the basic modes of transmission, accurate tests for the presence of infection, and effective drugs that slow or halt the progression of the disease. During that same period, governments and grassroots organizations around the world were spurred into action to meet the growing need for AIDS education, counseling, patients' rights, and clinical research. Despite these advances, critics observe that many governments were slow to respond to the crisis. For example, United States president Ronald Reagan did not discuss AIDS in public until 1987, more than six years after the start of the AIDS epidemic. By that time, 41,000 Americans had already died from the disease. AIDS advocates believe that the lack of federal support for AIDS research in these early years delayed the development of an effective vaccine or a cure for the disease.

A Origin of the Virus

Using computer technology to study the structure of HIV, scientists have determined that HIV originated around 1930 in rural areas of Central Africa, where the virus may have been present for many years in isolated communities. The virus probably did not spread because members of these rural communities had limited contact with people from other areas. But in the 1960s and 1970s, political upheaval, wars, drought, and famine forced many people from these rural areas to migrate to cities to find jobs. During this time, the incidence of sexually transmitted infections, including HIV infection, accelerated and quickly spread throughout Africa. As world travel became more prevalent, HIV infection developed into a worldwide epidemic. Studies of stored blood from the United States suggest that HIV infection was well established there by 1978.

In 1970, at about the same time that the HIV epidemic was taking hold in Africa, American molecular biologist David Baltimore and American virologist Howard Temin independently discovered the enzyme reverse transcriptase, which could be used to identify retroviruses. Over the next ten years, many retroviruses were identified in animals. But not until 1980, shortly before the first AIDS cases were recognized in the United States, did American virologist Robert Gallo identify the first human retroviruses, HTLV-I and HTLV-II (HTLV stands for human T cell lymphotropic virus).

Other studies demonstrated that these human retroviruses were more closely related to a retrovirus found in African chimpanzees than to each other. This discovery suggests that the human retroviruses may have evolved from retroviruses that originally infected chimpanzees. The chimpanzee retrovirus likely infected people and underwent mutations to form the human retrovirus. In 1999 scientists confirmed that HIV spread from chimpanzees to humans on at least three separate occasions in Central Africa, probably beginning in the 1940s or 1950s.

B Disease First Identified

Beginning in June 1981 the CDC published reports on clusters of gay men in New York and California who had been diagnosed with pneumocystic pneumonia or Kaposi's sarcoma. These two rare illnesses had previously been observed only in people whose immune systems had been damaged by drugs or disease. These reports triggered concern that a disease of the immune system was spreading quickly in the homosexual community. Initially called gay-related immunodeficiency disease (GRID), the new illness soon was identified in population groups outside the gay community, including users of intravenous drugs, recipients of blood transfusions, and heterosexual partners of infected people. In 1982 the name for the new illness was changed to acquired immunodeficiency syndrome, or AIDS.

While the disease was making headlines for the speed with which it was spreading around the world, the cause of AIDS remained unidentified. Fear of AIDS and ignorance of its causes resulted in some outlandish theories. Some thought the disease was God's punishment for behaviors that they considered immoral. These early theories created a social stigma surrounding the disease that still lingers.

Scientists quickly identified the primary modes of transmission—sexual contact with an infected person, contact with infected blood products, and mother-to-child transmission. From these modes of transmission it was clear that the new illness was spread in a specific manner that matched the profile of a viral infection. In 1983 French cancer specialist Luc Montagnier and his colleagues isolated what appeared to be a new human retrovirus from AIDS patients. They named it lymphadenopathy virus (LAV). Eight months later Gallo and his colleagues isolated the same virus in AIDS patients, naming the virus HTLV-III. Eventually, scientists agreed to call the infectious agent human immunodeficiency virus (HIV). In 1985 a new AIDS-causing virus was discovered in West Africa. Named HIV-2, the new virus is closely related to the first HIV, but it appears to be less harmful to cells of the immune system and reproduces more slowly than HIV-1.

Research leading to the development of the ELISA test was conducted simultaneously by teams led by Gallo in the United States and Montagnier in France. In 1985 the ELISA test to identify HIV in blood became available, followed by the development of the Western Blot test. These tests were first employed to screen blood for the presence of HIV before the blood was used in medical procedures. The tests were later used to identify HIV-infected people, many of whom did not know they were infected. These diagnostic tests also helped scientists study the course of HIV infection in populations.

C Defining the Illness

The CDC presented its first definition of AIDS in 1982. The CDC recommended that physicians diagnose AIDS if a person has an illness known to be caused by immune deficiency, as long as there is no known cause for this immune deficiency (people who undergo radiation therapy or who take certain drugs may impair their immune

systems). As more information became known about the course of HIV infection and the nature of the virus itself, this definition of AIDS was revised repeatedly to expand the list of illnesses considered diagnostic indicators of the disease. Early definitions were based on the opportunistic infections commonly found in HIV-infected men. As a result, many women who did not have symptoms covered in the official AIDS definition were denied disability benefits and AIDS-related drug therapies.

The current definition of AIDS was created in 1993 and includes 26 opportunistic infections and cancers, known as diagnostic indicators, that affect both men and women. The definition also emphasizes the importance of the level of CD4 cells in the blood. Today doctors make the diagnosis of AIDS in anyone with a CD4 count below 200 cells per microliter of blood, regardless of the associated illnesses they may have.

XI SOCIAL PERSPECTIVES

Although new and effective AIDS drugs have brought hope to many HIV-infected persons, a number of social and ethical dilemmas still confront researchers and public-health officials. The latest combination drug therapies are far too expensive for infected persons in the developing world—particularly in sub-Saharan Africa, where the majority of AIDS deaths have occurred. In these regions, where the incidence of HIV infection continues to soar, the lack of access to drugs can be catastrophic. In 1998, responding to an international outcry, several pharmaceutical firms announced that they would slash the price of AIDS drugs in developing nations by as much as 75 percent. However, some countries argued that drug firms had failed to deliver on their promises of less expensive drugs. In South Africa government officials developed legislation that would enable the country to override the patent rights of drug firms by importing cheaper generic medicines made in India and Thailand to treat HIV infection. In 1998, 39 pharmaceutical companies sued the South African government on the grounds that the legislation violated international trade agreements. Pharmaceutical companies eventually dropped their legal efforts in April 2001, conceding that South Africa’s legislation did comply with international trading laws. The end of the legal battle was expected to pave the way for other developing countries to gain access to more affordable AIDS drugs.

A Testing AIDS Drugs and Vaccines

AIDS research in the developing world has raised ethical questions pertaining to the clinical testing of new therapies and potential vaccines. For example, controversy erupted over 1997 clinical trials that tested a shorter course of AZT therapy in HIV-infected pregnant women in developing countries. Earlier studies had shown that administering AZT to pregnant women for up to six months prior to birth could cut mother-to-child transmission of HIV by up to two-thirds. The treatment’s $800 cost, however, made it too expensive for patients in developing nations.

The controversial 1997 clinical trials, which were conducted in Thailand and other regions in Asia and Africa, tested a shorter course of AZT treatment, costing only $50. Some pregnant women received AZT, while others received a placebo—a medically inactive substance often used in drug trials to help scientists determine the effectiveness of the drug under study. Ultimately the shorter course of AZT treatment proved to be successful and is now standard practice in a growing number of developing nations. However, at the time of the trials, critics charged that using a placebo on HIV-infected pregnant women—when AZT had already been shown to prevent mother-to-child transmission—was unethical and needlessly placed babies at fatal risk. Defenders of the studies countered that a placebo was necessary to accurately gauge the effectiveness of the AZT short-course treatment. Some critics speculated whether such a trial, while apparently acceptable in the developing nations of Asia and Africa, would ever have been viewed as ethical, or even permissible, in a developed nation like the United States.

Similar ethical questions surround the testing of AIDS vaccines in developing nations. Vaccines typically use weakened or killed HIV to spark antibody production. In some vaccines, these weakened or killed viruses have the potential to cause infection and disease. Critics questioned whether it is ethical to place all the risk on test subjects in developing regions such as sub-Saharan Africa, where a person infected by a vaccine would have little or no access to medical care. At the same time, with AIDS causing up to 5,500 deaths a day in Africa, others feel that developing nations must pursue any medical avenue for stemming the epidemic and protecting people from the virus.

B Economic Burden

For the struggling economies of some developing nations, AIDS has brought yet another burden: AIDS tends to kill young adults in the prime of their lives—the primary breadwinners and caregivers in families. According to figures released by the United Nations in 1999, AIDS has shortened the life expectancy in some African nations by an average of seven years. In Zimbabwe, life expectancy has dropped from 61 years in 1993 to 49 in 1999. The next few decades may see it fall as low as 41 years. Upwards of 11 million children have been orphaned by the AIDS epidemic. Those children who survive face a lack of income, a higher risk of malnutrition and disease, and the breakdown of family structure.

In Africa, the disease has had a heavy impact on urban professionals—educated, skilled workers who play a critical role in the labor force of industries such as agriculture, education, transportation, and government. The decline in the skilled workforce has already damaged economic growth in Africa, and economists warn of disastrous consequences in the future.

C Social Stigma and Discrimination

From the early days of the identification of AIDS, the disease has been powerfully linked to behaviors that are illegal (such as illicit drug use) or are considered immoral by many people (such as promiscuity and homosexuality). Consequently, a diagnosis of AIDS was a mark of disgrace, although medical research revealed that the disease follows well-defined modes of transmission that can affect any person. As the extent of the epidemic unfolded, misinformation about AIDS and how it is transmitted triggered widespread fear of contracting the disease. Some communities responded with hysteria that resulted in violence. In the United States in 1987, a Florida family with three HIV-positive sons who had become infected from blood transfusions were driven from their home when it was torched by an arsonist. In other communities, parents protested when HIV-infected children attended school. In many areas of the world, women in particular may face consequences if their HIV status is discovered. Reports indicate that many HIV-infected women are subject to domestic violence at the hands of their husbands—even if the husbands themselves are the source of infection. As a result, some women in developing nations fear being tested for HIV infection and cut themselves off from medical care and counseling.

In addition to social stigma, HIV-infected persons must grapple with more immediate concerns—a daily struggle for basic medical care and other basic rights in the face of discrimination and fear because of their HIV status. In China, for example, the number of HIV-positive individuals is a comparatively small problem so far. Yet nurses and other medical personnel who fear infection commonly refuse to perform procedures on HIV-infected people. This sort of discrimination against HIV-infected individuals has long been a problem in the United States. In 1998 the United States Supreme Court heard the case of Sidney Abbott, a young woman in Maine who sued dentist Randon Bragdon after he refused to treat her when he learned of her HIV-positive status. Basing its ruling on the Americans with Disabilities Act, the Supreme Court ruled in *Bragdon* v*. Abbott* that the woman's HIV infection constituted a disability, even though she suffered from no disease symptoms. AIDS advocates expect this decision to protect the rights of many people with AIDS in the United States.

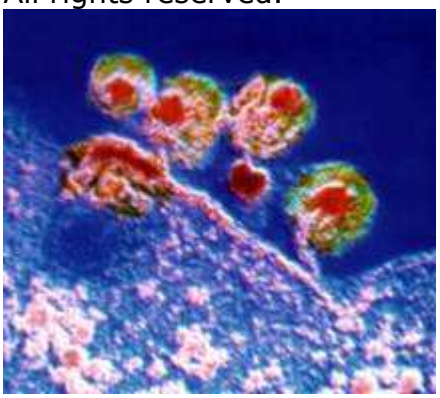
Some developing nations, such as Uganda, have met the AIDS crisis head-on, attempting to educate citizens and change high-risk behaviors in the population. However, other nations have been slow to even acknowledge the disease. In India, for example, the nation's prime minister did not speak publicly about the dangers posed by the epidemic until 1999.

In developed nations, some of the stigma attached to a diagnosis of AIDS has lessened in recent years, in part due to the admissions by public figures and celebrities, especially in the United States, that they were HIV infected. The deaths from AIDS of actor Rock Hudson and tennis player Arthur Ashe, and the AIDS advocacy roles of basketball player Magic Johnson and Olympic diver Greg Louganis have personalized the disease and helped society come to terms with the enormity of the epidemic.

To some scientists, the AIDS epidemic signals a troubling trend in humanity's future. Along with other deadly microbial threats of recent years—most notably Ebola virus, which has caused sporadic epidemics in Africa, and hantavirus, which broke out in the American Southwest in the early 1990s—AIDS is viewed by some as yet another in a series of emerging diseases that demonstrate how vulnerable humans are to newly encountered microbes. With population and land development increasing, humans have encroached farther into rain forests and other formerly wild areas, unleashing previously unknown disease agents. Meanwhile, global travel has become faster, more convenient, and more accessible to many people. Some scientists are worried by these trends, fearing the potential for an as-yet-unknown pathogen to arise and spread quickly and lethally around the globe.

The social, ethical, and economic effects of the AIDS epidemic are still being played out, and no one is entirely certain what the consequences will be. Despite the many grim facts of the AIDS epidemic, however, humanity is armed with proven, effective weapons against the disease: knowledge, education, prevention, and the ever-growing store of information about the virus's actions.

Contributed By:
John G. Bartlett



Luc Montagnier/Institut Pasteur/CNRI/Science Source/Photo Researchers, Inc.

Human Immunodeficiency Virus

The human immunodeficiency virus (HIV), which causes acquired immunodeficiency syndrome (AIDS), principally attacks CD4 T-cells, a vital part of the human immune system. As a result, the body's ability to resist opportunistic viral, bacterial, fungal, protozoal, and other infection is greatly weakened. *Pneumocystis carinii* pneumonia is the leading cause of death among people with HIV infection, but the incidence of certain types of cancers such as B-cell lymphomas and Kaposi's sarcoma is also increased. Neurological complications and dramatic weight loss, or "wasting," are characteristic of endstage HIV disease (AIDS). HIV can be transmitted sexually; through contact with contaminated blood, tissue, or needles; and from mother to child during birth or breastfeeding. Full-blown symptoms of AIDS may not develop for more than 10 years after infection.

November 27, 2004

PARENTAL ALIENATION SYNDROME

To Parents, Stepparents, Spouses, Ex-Spouses, Grandparents, Children and Anyone Else Affected by Parental Alienation Syndrome (P.A.S.):

Separation and divorce almost always represent a painful and stressful period of life. When children are involved, the situation only gets more complicated for all concerned. Fortunately, for the majority of divorcing families, the immediate disruption and upset of this difficult life transition tends to dissipate within six months to one year of a marital break-up. For these families, a new sense of "normal" is established and life goes on....
However, for a growing number of divorcing families, unfortunately this is not the case.

This Website is for Families
Struggling with the Damaging and Destructive Effects
of Parental Alienation Syndrome (P.A.S.)

If your children are suddenly rejecting you or acting "uncharacteristically" hostile toward you, AND if your ex-spouse seems to be interfering with the warm and loving relationship you once had with them, then it is quite possible that an alienating process is already underway. If on the other hand, you have already figured out that your children are being deliberately and without cause alienated from you, then you know first-hand how destructive and painful this has been for your children to endure. Whatever your situation, you need information and strategies about how to cope with this extremely malicious and potentially dangerous form of child abuse.
One of the greatest obstacles to effectively dealing with P.A.S. is appropriately informing those who have direct involvement with divorcing families, children and the administration of the law. These include: attorneys, judges, guardian ad litems, custody evaluators, mediators, psychologists, family therapists, Child Protective Services, physicians, teachers and police. The reality is what little information may be currently available to these authorities is often clouded by misinformation. Getting reliable information about P.A.S. into the hands of those who are the gatekeepers and decision makers for children is the first step to ensuring their rights to maintain a relationship with both parents are protected.
This website is a "work in progress" as we plan to continually add information and resources to it as time goes on. Please feel free to drop by from time to time to check out the information that has been added. Send our url to anyone you feel may benefit from what this website has to offer. Finally, you may also use the articles on this site as long as you give credit to Dr. Reena Sommer as the author.

"The Issues Surrounding the Parental Alienation Syndrome (P.A.S.)"
a brief report written by
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What is Internal Medicine?

Internal Medicine is a non-surgical medical specialty concerned with diseases of internal organs in adults. Physicians who specialize in the field, known as internists, are skilled in disease prevention and in managing complex disorders of the body. Internists may be either generalists or specialists.

General internists typically act as personal physicians, developing long-term relationships with patients. Internists give patients regular physical examinations, offer preventive care, diagnose and treat most nonsurgical illnesses, and refer serious or unusual cases to an appropriate specialist. If a patient complains of persistent stomach problems, for example, a general internist might refer the patient to a gastroenterologist, an internist who specializes in disorders of the digestive system.

Within the field of internal medicine, nine subspecialties are recognized: cardiology, the treatment of diseases of the heart and blood vessels; endocrinology, the study of glands and other structures that secrete hormones; gastroenterology, the care of conditions of the digestive tract, liver, and pancreas; hematology, the study of blood and blood-forming tissues; infectious disease, the study of severe or unusual infections; nephrology, the diagnosis and treatment of kidney diseases; oncology, the study and treatment of cancerous tumors; pulmonary disease, concerned with disorders of the lungs and other components of the respiratory system; and rheumatology, the treatment of disorders involving joints and other connective tissues. An additional subspecialty gaining prominence is geriatrics, the study of diseases affecting older adults.

The development and widespread use of many technologies have enabled internists to perform procedures that formerly were considered the responsibility of surgeons. For example, a procedure called endoscopy performed using an illuminated tubular instrument called an endoscope permits doctors to examine and photograph internal organs and manipulate tools inside the body without invasive surgery. Another tool, a narrow tubular device called a cardiac catheter, permits physicians to inject drugs or fluids directly into the heart.

The origins of internal medicine date back to the late 19th century, when the practices of general medicine and surgery began to split into separate disciplines. Over time, internists became hospital-based generalists who played a role somewhere between those played today by family physicians and surgical specialists. Since the mid-1900s internal medicine in the United States has shifted from a primarily generalist field to a discipline in which roughly 65 percent of all internists are certified as sub-specialists.

Those seeking a career in internal medicine must obtain a medical degree and complete a three-year in-hospital internal medicine training program. Internists interested in a subspecialty must spend one or two additional years studying that discipline and must pass a certification test. The specialty board for internal medicine, the American Board of Internal Medicine, was established in 1936.

M.A.V.A.W.'s Vision

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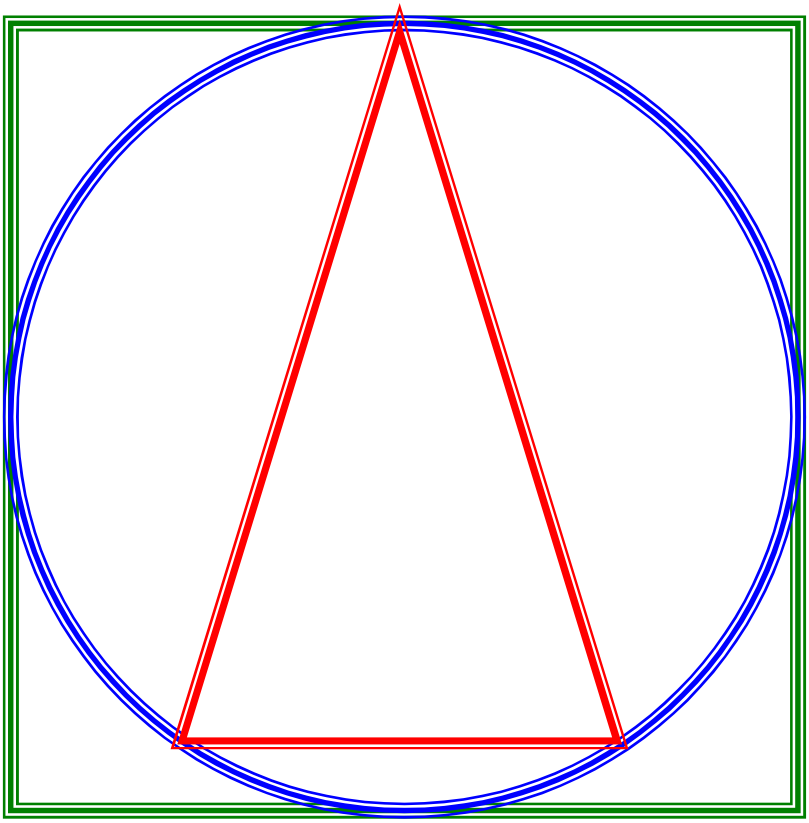
TWENTY-FIRST CENTURY

A Culture Of Peace



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